

Everyday ICT terms for Policymakers and Government Officers

DRAFT

4G **access** AI applications attachment based bandwidth blog business call communication
computer **connectivity** create **development** device digital electronic G2B gen
glossary government ICT information **internet management** messages **mobile**
network online organization personal phone podcast process program protocol
public security service site SMS **social** software standard system technology tel
transmission **users** video voice Web wireless browser captcha **firewall hyperlink**
interface **LCD** mp3 netizen platform **RSS** usb WiFi **VoD** Patch LLU cookie Console



UNITED NATIONS
APC*i*CT - ESCAP

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Everyday ICT terms for Policymakers and Government Officers

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INTRODUCTION

'Everyday ICT Terms for Policymakers and Government Officers in Asia Pacific' is designed to allow government officials of ESCAP member States in the Asia-Pacific region to become better acquainted with ever growing lists of Information and Communication Technology (ICT) terms. Whether or not government officials play technical roles, it is essential for them to know the fundamental terms within the field of ICT in an environment where governments have become key users of ICTs and set policies for ICT development and use.

The objectives of the Glossary are to:

1. Provide a quick reference to common ICT terms that government officers often encounter;
2. Make government officers aware of the latest ICT terms and;
3. Give priority to terms used particularly in the fields of e-Government, ICT for Development, Information Security and Health Informatics

The Glossary purposely avoids common ICT terms (such as E-Mail, Monitor, Mouse, Local Area Network, Wide Area Network, Internet, World Wide Web, etc.) which are not unfamiliar to the majority of government officers and specific technical terms (such as Bus Topology, Ethernet, Object Oriented Programming, Cyclic Redundancy Check, etc.) which are used primarily by Information and Communication Technology professionals and can be easily searched online. The Glossary also avoids lengthy explanations in most cases, though a few commonly used and important terms are explained in detail.

FOCUS ON GOVERNMENT OFFICERS

The vast majority of government officials are not Information and Communication Technology professionals. There is no need for them to be as only a limited number of officials are required to design, build and maintain the information systems within government. Even this need is waning with most government agencies opting to outsource their ICT needs.

However, government officers do need an understanding of ICT term in order to carry out the assigned duties, and work with specific IT staff or contracted entities. A general understanding of current ICT terminology will facilitate high level officers in their decision making processes.

Given this background, the Glossary serves high and medium level non-technical government officials by following a basic set of guidelines.

- i. ***Simplicity:*** The terms are explained in layman's language. The Glossary avoids technical jargon, equations and programming details.
- ii. ***Clarity:*** The glossary provides a definite guide specifically when there is room for confusion. (i.e. The abbreviation ATM stands for three different things in ICT literature. The Glossary provides an explanation of each.)
- iii. ***Illustrative examples:*** The Glossary uses illustrations and diagrams where necessary.
- iv. ***Updated information:*** The Glossary avoids inclusion of outdated information and terms no longer in common use. Conversely the Glossary includes a significant number of terms associated with 'Social Networking' and Web 2.0.

USAGE

The Glossary is user-friendly and self-explanatory. The following keys are used throughout the Glossary to categorize terms into their respective field of ICT. “GEN” is used for terms in general usage.

1. **CC:** Climate Change
2. **DRR:** Disaster Risk Reduction
3. **ECOM:** Electronic Commerce
4. **EGOV:** E-Government
5. **FB:** Facebook
6. **HE:** Hardware Engineering
7. **HI:** Health Informatics
8. **INT:** Internet
9. **IS:** Information Security
10. **ITM:** IT Management
11. **SE:** Software Engineering
12. **SN:** Social Networking
13. **TEL:** Telecommunications
14. **W20:** Web 2.0
15. **GEN:** General Usage

LIST OF TERMS

2G: (TEL) Second-generation mobile network or service. A general term for second-generation networks, for example GSM.

3G: (TEL) 3rd Generation¹, is a generation of standards for mobile phones and mobile telecommunications services fulfilling specifications by the International Telecommunication Union. Application services include wide-area wireless voice telephone, mobile Internet access, video calls and mobile TV, all in a mobile environment. Compared to the older 2G and 2.5G standards, a 3G system must allow simultaneous use of speech and data services, and provide peak data rates of at least 200 kbps according to the IMT-2000² specifications. Recent 3G releases - often denoted 3.5G and 3.75G - also provide mobile broadband access of several Mbps to laptop computers and smart phones.



Figure 1: A 4G dongle

4G: (TEL) stands for the fourth generation of cellular wireless standards. It is a successor to 3G and 2G families of standards. Speed requirements for 4G service set the peak download speed at 100 Mbps for high mobility communication (such as from trains and cars) and 1 Gbps for low mobility communication (such as pedestrians and stationary users). A 4G system is expected to provide a comprehensive and secure all-IP based mobile broadband solution to smart phones, laptop computer wireless modems and other mobile devices. Facilities such as ultra-broadband Internet access, IP telephony, gaming services, and streamed multimedia may be provided to users. Pre-4G technologies such as mobile WiMax and first-release 3G Long term evolution (LTE) have been

available on the market since 2006 and 2009 respectively, and are often branded as 4G. Current versions of these technologies do not fulfill the ITU Radiocommunication Sector requirements of

¹ A new generation of cellular standards has appeared approximately every tenth year since 1G systems were introduced in 1981/1982. Each generation is characterized by new frequency bands, higher data rates and non backwards compatible transmission technology.

² IMT-2000 is a term used by the International Telecommunications Union (ITU) to refer to many third generation (3G) wireless technology that provide higher data speed between mobile phones and base antennas.

data rates approximately up to 1 Gbps for 4G systems, however marketing materials in Sweden, the United States, etc., continue to use 4G as a description for WiMax and LTE in their current Pre-4G forms.

Accessibility: (GEN) Accessibility refers to the accessibility of web pages to all users. People with impaired sight, hearing, manual dexterity or cognitive function encounter barriers when they attempt to use the Internet.

Accountability: (GEN, ECOM, EGOV) An essential ingredient of security systems is the ability to determine who performed any given action and which actions occurred during a specific time interval. Organizations improve accountability by using the latest software applications, including intrusion detection and network auditing tools, to trace violations or attempted violations of computer security to individuals who then can be held responsible.

ACD: (TEL, ECOM, HE) Automatic Call Distributor. A specialized phone system that handles many incoming calls. ACDs are used for a variety of order-taking functions, such as calls to help desks or dispatching of service technicians. They are designed to distribute a large volume of incoming calls uniformly to operators or agents (i.e., airline reservation agents).

Acrobat: (GEN) A product from Adobe Systems used to display documents in digital form as they appeared in their original, paper format. As an Internet plug-in, it is often used to display documents, such as brochures, on the Web.

ActiveX: (SE, GEN) A Microsoft technology that facilitates various Internet applications, and therefore extends and enhances the functionality of Microsoft's Internet Explorer browser. Like Java, ActiveX enables the development of interactive content. When an ActiveX-aware browser encounters a Web page that includes an unfamiliar feature, it automatically installs the appropriate applications so the feature can be used.

Admin: (FB, ITM) An admin is a person who administers, or is in charge of a group. When one creates a group, one is automatically listed as both an admin and the group's creator. Admins can invite people to join the group, appoint other admins, and edit group information and content. They can also remove members and other admins.

ADSL (Asymmetric Digital Subscriber Line): (TEL, HE) One form of the Digital Subscriber Line technology, a data communications technology that enables faster data transmission over copper telephone lines than a conventional voice-band modem can provide. (Please see the annex for a detailed description)

Advanced Technology: (TEL, HE) A technology that is still immature but promises to deliver significant value, or that has some technical maturity but still has relatively few users; also known as an "emerging technology." Current examples include artificial intelligence, biometrics, etags, grid computing and wearable computers.

Adware: (ECOM) Advertising-supported software. A software package which automatically plays, displays or downloads advertising material to a computer after the software is installed on it or while an associated application is being used.

Agent: (SE) Software that acts as an intermediary for a person by performing an activity. Intelligent agents can "learn" an individual's preferences and act in the person's best interest. For example, an agent for a purchasing manager could learn corporate specifications, determine when inventory is low, search the Internet for the lowest cost supplier, and even negotiate and complete transactions.

Aggregator: (ECOM, SE) An entity that enables buyers within a market to select among competitors by aggregating information about the market and its suppliers and providing this information via a Web site. Aggregators may provide decision-support applications that integrate supplier information with third-party information and with user requirements or preferences to allow users to differentiate the services and features of various competitors. Content aggregators aggregate information and match it to user preferences. These preferences may be declared actively (that is, if the user explicitly specifies them) or passively (for example, the software discerns preferences from patterns of user behavior or interest).

AI (Artificial Intelligence): (HE) The intelligence of machines and the branch of computer science that aims to create it. (Please see the annex for a detailed description)

Analogue Network/Analog Network: (TEL) A telecommunication network in which information is conveyed as a continuously varying electronic signal.

Anti-Virus Program: (IS) Programs capable of detecting, removing, and protecting against various forms of malicious code or malware, including viruses, worms, Trojan horses, spyware, and adware.

Applet: (SE) Applets are small modules that are programmed in Java and can be integrated into HTML pages (i.e. to present moving displays). The program is executed if the browser is Java-capable. As Java Virtual Machine (JVM) is not integrated into all browsers, it has to be first installed in order for applets to run. However, this brings substantial security risks with it. Another disadvantage is the long time it takes to load the applets into the browser.

Application Service Provider (ASP): (SE, ECOM) A company that provides the use of applications and associated services across a network to multiple customers. ASPs deliver standardized software via a network — usually, but not necessarily, the Internet — through an outsourcing contract predicated on usage-based transaction pricing. ASPs may host applications on their customers' sites, but most do so in their own data centres, where they are responsible for maintaining the applications and all associated hardware, software and network services to link the applications to the customer base. Despite early promise that the ASP model would suit a broad range of application types, most ASP services to date have been limited to e-mail or enterprise resource planning.

Assistive Technologies: (GEN) Assistive technologies comprise software and hardware that is intended to assist disabled people with their daily activities. In the area of information technology, some examples are screen readers, screen magnifying glasses, special keys and speech input software.

ATM (Asynchronous Transfer Mode): (HE, TEL) A transmission mode that organizes information into cells. It is asynchronous in the sense that the recurrence of cells from an individual user is not necessarily periodic.

ATM (Automated Teller Machine): (HE, ECOM) A public banking machine that customers can access by inserting or swiping a magnetic card and entering a password. ATMs are usually connected to central computers through leased local lines and multiplexed data networks.

ATM (Adobe Type Manager): (GEN) An application program offered by Adobe.

Attachment: (GEN) A file which is attached to an email by the sender and can be read by the recipient.

Attack: (IS) The act of trying to bypass security controls on a system. An attack may be active, resulting in the alteration of data, or passive, resulting in the release of data. (**Note:** The fact that an attack is made does not necessarily mean that it will succeed. The degree of success depends on the vulnerability of the system or activity and the effectiveness of existing countermeasures.)

Audit Trail: (IS) A chronological record of system activities that is sufficient to enable the reconstruction, reviewing and examination of the sequence of environments and activities surrounding or leading to an operation, a procedure or an event in a transaction from its inception to final results.

Auditing: (IS) Creating a chronological record of the user, the systems, application, and network activities of all transactions.

Automated Backup: (HE) A function that automates most basic forms of storage availability — recoverable data. With automated backup, labor-intensive, departmental data backup processes can be replaced with automated, enterprise-level solutions to increase availability.

Automated Information System (AIS): (GEN) Any equipment — including software, firmware and hardware — of an interconnected system or subsystems of equipment that is used in the automatic acquisition, storage, manipulation, control, display, transmission or reception of data.

Avatars: (SN, FB, W20) Graphical images representing people. They are what one is in a virtual world. One can build a visual character with the body, clothes, behaviors, gender and name of one's choice. This may or may not be an authentic representation of oneself.

Augmented Reality (AR): (GEN, SE) is a term for a live direct or an indirect view of physical environment elements augmented by computer-generated sensory input, such as sound or graphics. As a result, the technology functions by enhancing one's current perception of reality. By contrast, virtual reality replaces the real-world with a simulated one.

B2B (Business-to-Business): (ECOM) A form of e-commerce conducted among businesses, typically because of formal, contractual arrangements. B2B functions include: (1) Sophisticated Web authorization and control for delivery of sensitive price, contract and content information for each partner (2) Catalogs that provide custom views based on access controls and parametric searches

and (3) Order entry functions such as standardized "ship to" locations, dynamic order recalculation and payment options.

B2C (Business-to-Consumer): (ECOM) A form of e-commerce conducted between businesses and consumers. B2C commerce includes both formal relationships (e.g., customers with subscription based services or content) and ad hoc relationships (formed in real time to enable a new user to buy, sell or access information).

B2E (Business-to-Employee): (ECOM) The use and leverage of e-business approaches and Internet technologies to deliver a comprehensive set of services to an enterprise's employees and their managers. B2E is the automated delivery of enterprise relationship management (ERM), but goes beyond ERM's support of human capital management (HCM) to include workforce management and workforce optimization.

B2G (Business-to-Government): (ECOM, EGOV) E-commerce between public- and private-sector enterprises. Government-to Business (G2B) is the more common term used to describe these relationships.

Back Office: (ITM) A general term for the category of applications that support non-customer-facing, core enterprise functions. Examples include enterprise resource planning (ERP), supply chain management (SCM) and human-resource systems.

Backbone: (TEL, HE, INT) A local backbone refers to the main network lines that connect several local area networks (LANs) together. The result is a wide area network (WAN) linked by a backbone connection. Internet backbones are huge data pipes (routes) that connect networks, countries and even continents. These data routes are hosted by commercial, government, academic and other high-capacity network centres, the Internet exchange points and network access points that interchange Internet traffic between the countries, continents and across the oceans of the world.

Backup: (GEN) Duplicate copy of data made for archiving purposes or for protecting against damage or loss.

Bandwidth: (TEL, HE) The range of frequencies available to be occupied by signals. In analogue systems it is measured in terms of Hertz (Hz) and in digital systems in bits per second (bit/s). The

higher the bandwidth, the greater the amount of information that can be transmitted in a given time.

Banner Ad: (INT, ECOM, SN) a.k.a., Ad banner, Online ad. An online advertisement on a Web page, that links to another Web site, buffer page or landing page.

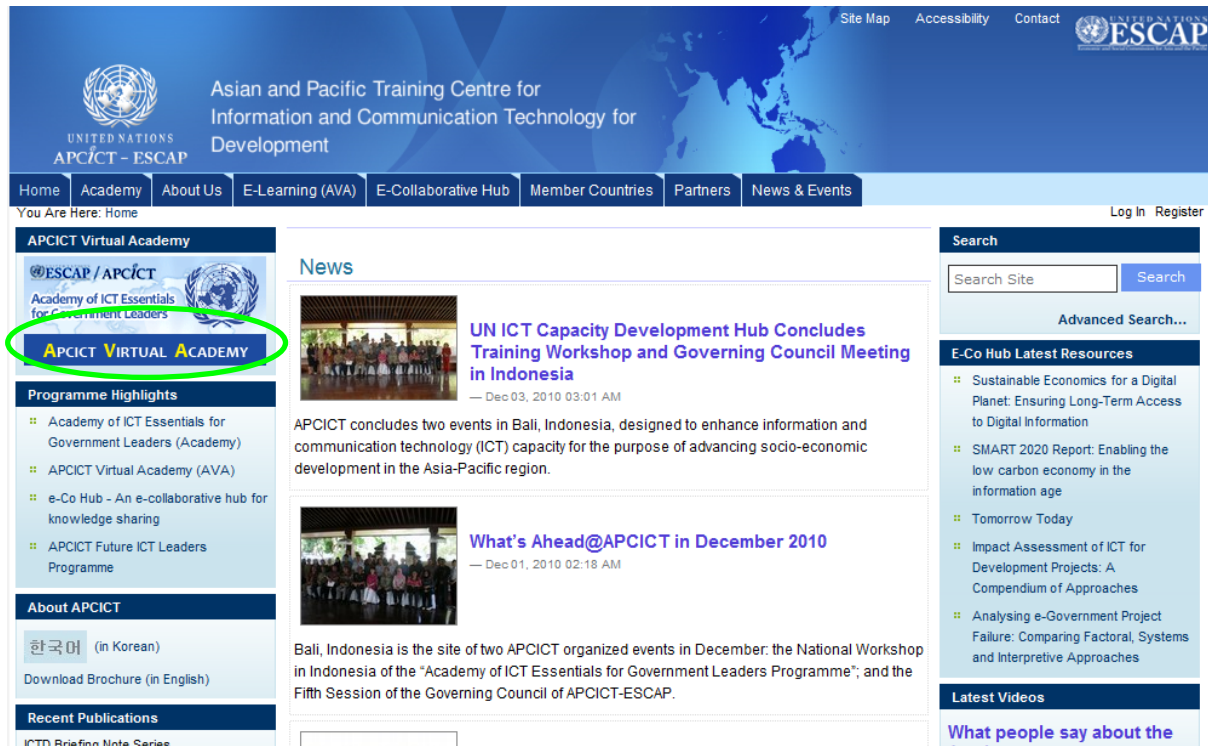


Figure 2: In the UNAPCICT website above there is a banner ad for APCICT Virtual Academy. Clicking it will take the visitor to a different page.

Base Station: (TEL, HE) A radio transmitter/receiver and antenna used in the mobile cellular network. It maintains communications with cellular telephones within a given cell and transfers mobile traffic to other base stations and the fixed telephone network.

Beta Testing: (HE, SE) Second-stage testing of computer products, typically done by potential customers and outside experts to identify problems that need to be fixed before the product can be released for sale.

BIA (Business Impact Analysis): (GEN) An analysis of the costs (financial and nonfinancial) that would be incurred if a system or set of business processes failed to function properly. BIA is a required early

step in the business continuity planning (BCP) process. Without this step, it is difficult to balance the cost of business continuity measures against potential losses.

Billing Procedure: (ECOM) Payment procedure in which individual invoices or payment amounts are summed up or set off up to a certain point in time or until reaching a minimum amount.

Biometric Authentication: (HE, IS) A form of user authentication based on a physical (e.g., fingerprint, iris, face or hand) or behavioral (e.g., signature or voice) characteristics. Because it is based on something the person "is", biometric authentication can provide a higher level of security than authentication based on something a person "knows" (e.g., a password) or something a person "has" (e.g., a magnetic card or hardware token). Biometric authentication systems require users to enroll to generate a template for later comparison and matching.

Biometric Procedures: (HE, IS) Biometric procedures are procedures for the automatic recognition of people through physical features or typical behavior, e.g. personal signature.

Biometrics: (HE, IS) Biometrics is the study of measurable biological characteristics used in computer security applications as an authentication technique. Most commonly, biometrics used in computer security systems entails computer analysis of fingerprints or speech. Biometrics is expected to become increasingly important in e-business transactions, as an effective way to detect fraudulent users.

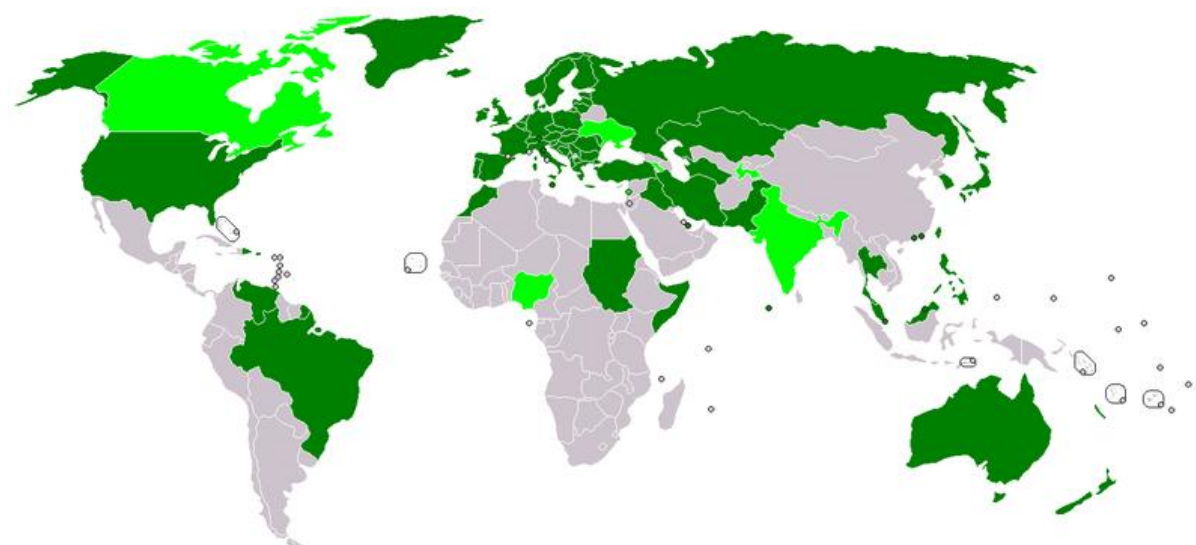
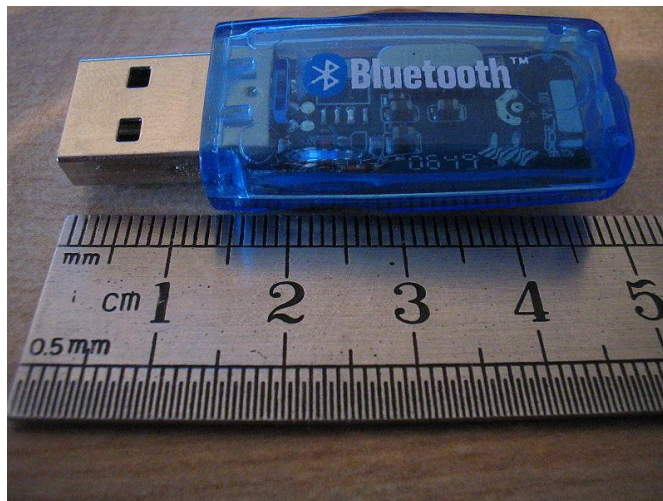


Figure 3: Countries that issue biometric passports are shown in dark green while those who plan to do so in the near future in light green. Source: Wikipedia

Blog: (SN, GEN) A blog (a blend of the term web log) is a type of website or part of a website. Blogs are usually maintained by an individual with regular entries of commentary, descriptions of events, or other material such as graphics or video. Entries are commonly displayed in reverse-chronological order. (Please see the annex for a detailed description)



Bluetooth: (HE) A radio technology that enables the transmission of signals over short distances between mobile phones, computers and other devices. It is typically used to replace cable connections. Bluetooth devices do not need to be in line-of-sight of each other to communicate.

Figure 4: A Bluetooth USB

Bookmark: (GEN) Similar to a real-life bookmark, an Internet bookmark acts as a marker for a Web site. (In Internet Explorer they are called "Favorites".) When using a Web browser, you can simply select a bookmark from the browser's Bookmarks menu to go to a certain site.

BPO (Business Process Outsourcing): (GEN) The delegation of one or more IT-intensive business processes to an external provider that, in turn, owns, administers and manages the selected processes, based on defined and measurable performance metrics.

BPR (Business Process Re-engineering): (ITM, GEN) The fundamental analysis and radical redesign of business processes and management systems to accomplish change or performance improvement. BPR uses objective, quantitative methods and tools to analyze, redesign and transform business processes, including supporting organization structures, information systems, job responsibilities and performance standards.

Broadband: (TEL, HE) Broadband is defined as Internet access with a minimum capacity of greater or equal to 256 kbps in one or both directions. Fixed broadband is implemented through technologies such as digital subscriber line (DSL), cable modem, fiber to the home (FTTH), metro Ethernet, wireless local area networks (WLAN), etc. Mobile broadband is implemented through technologies such as wideband CDMA, HSDPA, CDMA 1xEV-DO, etc.

Browser: (GEN, INT) An application that retrieves WWW documents specified by URLs from an HTTP server on the Internet. A Browser displays the retrieved documents according to the Hypertext Markup Language (HTML).

Building Information Modeling (BIM): (CC, GEN) This covers geometry, spatial relationships, light analysis, geographic information, quantities and properties of building components (for example manufacturers' details) related to constructions. BIM can be used to demonstrate the entire building life cycle, including the processes of construction and facility operation.

Business Continuity Planning (BCP): (IS, GEN) Process of developing advance arrangements and procedures that enable an organization to respond to an event in such a manner that critical business functions continue with planned levels of interruption or essential change. Similar terms include contingency planning and disaster recovery planning.

Business Intelligence (BI): (IS, GEN) A broad category of applications and technologies for gathering, storing, analyzing and providing access to data to help enterprise users make better business decisions. BI applications include the activities of decision support systems, query and reporting, online analytical processing (OLAP), statistical analysis, forecasting and data mining. The business intelligence process includes communicating findings and effecting change. Domains include customers, suppliers, products, services and competitors.

Cable Television (CATV): (TEL, GEN) A system for delivery of television video and audio content via a wired network, employing either co-axial cable or fiber.

CAD/CAM (Computer-Aided Design/Computer-Aided Manufacturing): (HE) A broad category of systems and software encompassing both computer-aided design (CAD) and computer-aided manufacturing (CAM) functionality.

Call Centre: (GEN) A group or department where employees receive and make high volumes of telephone calls. Call centres may serve internal customers (for example, help desks) or external customers (for example, customer service and support centres). These centres use a variety of technologies to improve the management and servicing of calls. A centre that uses both phone- and non-phone-based communication channels (such as e-mail or the Web) is known as a "contact centre."

Calling Party's Network Pays (CPNP): (TEL) In a CPNP regime, the call receiver's provider levies some predetermined charge per minute on the call originator's provider for termination, while the call receiver's operator pays nothing.

Captcha: (IS) A captcha is a program used to verify that a human, rather than a computer, is entering data. Captchas are commonly seen at the end of online forms and ask the user to enter text from a distorted image. The text in the image may be wavy, have lines through it, or may be highly irregular, making it nearly impossible for an automated program to recognize it.



Figure 5 : A captcha used by Facebook

CDMA (Code Division Multiple Access): (TEL) A technology for digital transmission of radio signals based on spread spectrum techniques where each voice or data call uses the whole radio band and is assigned a unique code.

CD-R (Compact Disc Recordable): (GEN, HE) A standard technology that enables systems to record data on a compact disc (CD). Unlike CD rewritable (CD-RW) discs, CD-R discs can be recorded only once.

CD-RW (Compact Disc Rewritable): (GEN, HE) A standard and technology that enables a system to write, erase or rewrite data to a compact disc (CD). Unlike CD recordable (CD-R) discs, CD-RW discs can be written to multiple times.

Certification: (IS, ECOM) The comprehensive evaluation of the technical and nontechnical security features of an AIS and other safeguards, made in support of the accreditation process, which establishes the extent to which a particular design and implementation meet a specified set of security requirements.

Circuit-Switched Connection: (TEL) A temporary connection that is established on request between two or more stations in order to allow the exclusive use of that connection until it is released. At present, most voice networks are based on circuit-switching, whereas the Internet is packet-based.

CIS (Clinical Information System): (HI) A system used by physicians, nurses, anesthesiologists and other caregivers to develop patient care plans, document care and interventions, monitor and record patient vital signs, manage orders and results, document medication administration, and measure patient outcomes. CISs have evolved from basic nursing documentation and orders/results applications to sophisticated, multidisciplinary information systems used in a variety of care environments.

Clean Technology (aka Clean Tech): (CC, GEN) This is recycling, renewable energy (wind power, solar power, biomass, hydropower, biofuels), information technology, green transportation, electric motors, green chemistry, lighting, and many other appliances that are now more energy efficient. It is a means to create electricity and fuels, with a smaller environmental impact while minimizing pollution.

Cloud Computing: (TEL, HE) Cloud computing is a concept that uses the Internet and central remote servers to maintain data and applications. Cloud computing allows consumers and businesses to use applications without installation and access their personal files at any computer with Internet access. It provides much more efficient computing by centralizing storage, memory, processing and bandwidth. A simple example is Yahoo email or Gmail etc. One does not need software or a server

to use them. All a consumer would need is just an Internet connection and he/she can start sending emails. The server and email management software is all on the cloud (Internet) and is totally managed by the cloud service provider Yahoo, Google etc. The consumer gets to use the software alone and enjoy the benefits. (Please see the annex for a detailed description)

Commercial, off-the-shelf (COTS): (GEN, SE) This is a term defining technology which is ready-made and available for sale, lease, or license to the general public. The term often refers to computer software or hardware systems and may also include free software with commercial support. COTS purchases are alternatives to in-house developments or one-off government-funded developments.

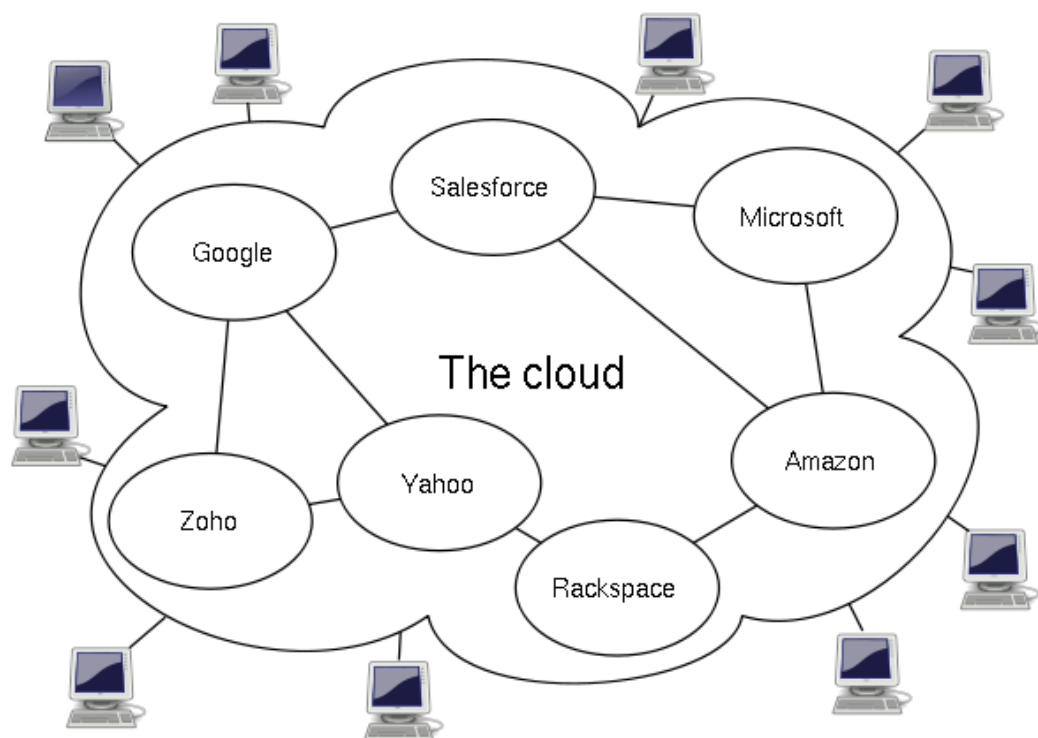


Figure 6: The conceptual diagram of Cloud Computing

Community of Practice: (GEN) People associated and interlinked in a communication or knowledge network because of their shared interest or shared responsibility for a subject area. Examples are people who hold similar job functions (such as project managers, department managers, team leaders or customer service agents); all the people on a project team; and people interested in specific technologies (such as e-commerce or network management). Communities continually

emerge and dissolve, and their membership, processes and knowledge continually change and evolve.

Computer-generated imagery (CGI): (GEN, SE) Is the application of the field of computer graphics or, more specifically, 3D computer graphics to special effects in art, films, television programs, commercials, simulators and simulation generally, and printed media. The visual scenes may be either dynamic or static. 3D computer graphics software is used to make computer-generated imagery for movies, etc. Recent availability of CGI software and increased computer speeds has allowed individual artists and small companies to produce professional grade films, games, and fine art from their home computers.

Console: (GEN) Screen and keyboard which permits access and control of the server or mainframe computer in a networked environment.

Content Filtering: (SE) A content-filtering application accepts or rejects data by relying on a pattern through which data is blocked or allowed to pass through the filter. It is mainly used on the Internet to prevent access to certain sites, for example by parents who do not want their children to visit adult sites. There are two main content filtering methods -- URL list filtering and word-matching filtering. URL list filtering depends on the use of an allowed site and blocked site list. Word-matching filtering relies on finding and blocking inappropriate words and phrases.

Convergence: (TEL) A term used to describe a variety of technological and market trends involving the blurring of previously distinct lines between market segments such as cable television, telephony and Internet access, all of which can now be provided through a variety of different network platforms.

Cookie: (INT, IS) A small text file that a Web server stores on a user's hard drive when the user visits certain Web sites. A cookie contains all the information that a user has to submit on a first visit to a particular Web site in order to gain access. When a user revisits that Web site, the cookie makes it unnecessary for the user to enter the same information all over again. The positive aspect of cookies is that they make it possible for users to take advantage of the convenient "shopping cart" feature of many Web sites. Unfortunately, cookies also make it possible for marketing organizations to monitor users' browsing patterns; users then find themselves the targets of custom-tailored marketing campaigns.

Country Code Top-Level Domain (ccTLD): This is an Internet top-level domain generally used or reserved for a country, a sovereign state, or a dependent territory. For example: IN-India, KR-Korea, ID-Indonesia, TH-Thailand and JP-Japan. A full list of country code domains are available at

Coverage: (TEL) Refers to the range of a mobile cellular network, measured in terms of geographic coverage (the percentage of the territorial area covered by mobile cellular) or population coverage (the percentage of the population within range of a mobile cellular network).

CRM: (ITM, GEN) Customer relationship management. A content industry term for methodologies, software, and usually Internet capabilities that help an enterprise manage customer relationships in an organized way. For example, an enterprise might build a database about its customers that describes relationships in sufficient detail so that management, salespeople, people providing service and perhaps the customer directly could access content, match customer needs with product plans and offerings, remind customers of service requirements, know what other products a customer had purchased and so forth.

Crowdsourcing: (GEN) Refers to harnessing the skills and enthusiasm of those outside an organization who are prepared to volunteer their time contributing content and solving problems.

Cryptography: (IS) Discipline of mathematics and computer science concerned with information security and related issues, particularly encryption and authentication and such applications as access control. In computer and network security, a tool for access control and information confidentiality.

Dark Fiber: (TEL, HE) Fiber-optic cable deployments that are not yet being used to carry network traffic.

Data Base Administrator (DBA): (GEN) Individual responsible for managing and administering databases.

Data Compression: (HE) A technique that saves storage space or bandwidth consumption by eliminating gaps, empty fields, redundancies or unnecessary information to shorten the length of data records or blocks.

Data Integrity: (HE, SE) The assurance that data has not been lost or corrupted in the course of being stored or communicated. Aside from hackers or deliberate destruction, the main threats to data integrity include network transmission errors such as dropped packets, storage hardware errors such as bad disk sectors, and application errors such as database replication errors. Methods of ensuring data integrity include redundancy and parity checking for data storage and transmission, and two-phase commit and template filtering for data entry and database management.

Data PBX: (TEL, HE) A private branch exchange (PBX) devoted to data, rather than voice, communications.

Database: (SE) Structured format for organizing and maintaining easily retrievable information. Simple database examples are tables and spreadsheets. A database consists of an organized collection of data for one or more uses, typically in digital form. One way of classifying databases involves the type of their contents, for example: bibliographic, document-text, statistical. Digital databases are managed using database management systems, which store database contents, allowing data creation and maintenance, and search and other access.

DBMS (Database Management System): (SE) A system that enables end users or application programmers to share data. It provides a systematic method of creating, updating, retrieving and storing information in a database. DBMSs also typically perform data integrity, data access control, and automated rollback, restart and recovery functions.

Debit Card: (ECOM) A paid in advance card with which services can be paid. It distinguishes itself from the electronic purse in that the same card cannot be recharged and the value units do not represent monetary units. Debit cards are, for example, phone cards or scratch cards (cards on which a number has to be scratched free).

Default Accounts: (IS) System login account predefined in a manufactured system to permit initial access when system is first put into service.

Default Password: (IS) Password on system administration or service accounts when system is shipped from the manufacturer; usually associated with default account. Default accounts and passwords are published and well known.

Delicio.us: (SN, W20) Delicio.us (formerly del.icio.us, pronounced "delicious") is a social bookmarking web service for storing, sharing, and discovering web bookmarks. Delicious uses a non-hierarchical classification system in which users can tag each of their bookmarks with freely chosen index terms (generating a kind of folksonomy).

Desktop Publishing: (GEN) The process of designing and publishing documents using desktop software and hardware, such as PCs, printers and scanners. The desktop-publishing software category includes page layout and design applications from vendors such as Adobe Systems and Quark.

Digg: (SN, W20) Digg is a social news website; the site's cornerstone function consists of letting people vote stories up or down, called digging and burying, respectively. Digg's popularity has prompted the creation of other social networking sites with story submission and voting systems.

Digital Certificate: (IS, ECOM) Digital certificates allow a user to send an encrypted message. A digital certificate is an attachment to an electronic message that verifies the user is who they claim to be, and is used to ensure secure e-business transactions. The Certificate Authority (CA), which issues a user's digital certificate, makes known the user's public key, which another user employs to decode the digital certificate attached to a message. This process also verifies that the certificate was issued by the CA and allows users to obtain identification information of the certificate-holding sender. The recipient of the message can then send an encrypted reply.

Digital Content Industry: (ECOM) Comprises the creation, design, management and distribution of digital products and services and the technologies that underpin them. Specific sectors include visual effects and animation (including virtual reality and 3D products), interactive multimedia (e.g. websites, CD-ROMs), computer and online games, educational multimedia (e-learning), and digital film & TV production and film & TV post-production.

Digital Divide: (GEN) The lack of opportunities experienced by those with limited accessibility to technology, especially the Internet. This includes, but is not limited to, accessibility challenges in the following areas: (1) Cultural (e.g., membership of a community that prohibits or restricts access to technology) (2) Physical (e.g., having a disability that makes it difficult or impossible to use a computer) (3) Economic (e.g., being unable to afford a computer) and (4) Educational (e.g., not knowing how to use a computer). Given the range of criteria used to assess the various technological disparities between groups/nations, and lack of data on some aspects of usage, the exact nature of

the digital divide is both contextual and debatable. Some argue that the digital divide is a symptom of a larger and more complex problem such as persistent poverty and inequality, while others identify socioeconomic status, income, educational level, and race among other factors associated with technological attainment, or the potential of the Internet to improve everyday life for those on the margins of society and to achieve greater social equity and empowerment. The conclusion from the various existing definitions of the digital divide is that the nature of the divide, and the question if it is closing or widening, depends on the particular definition chosen.

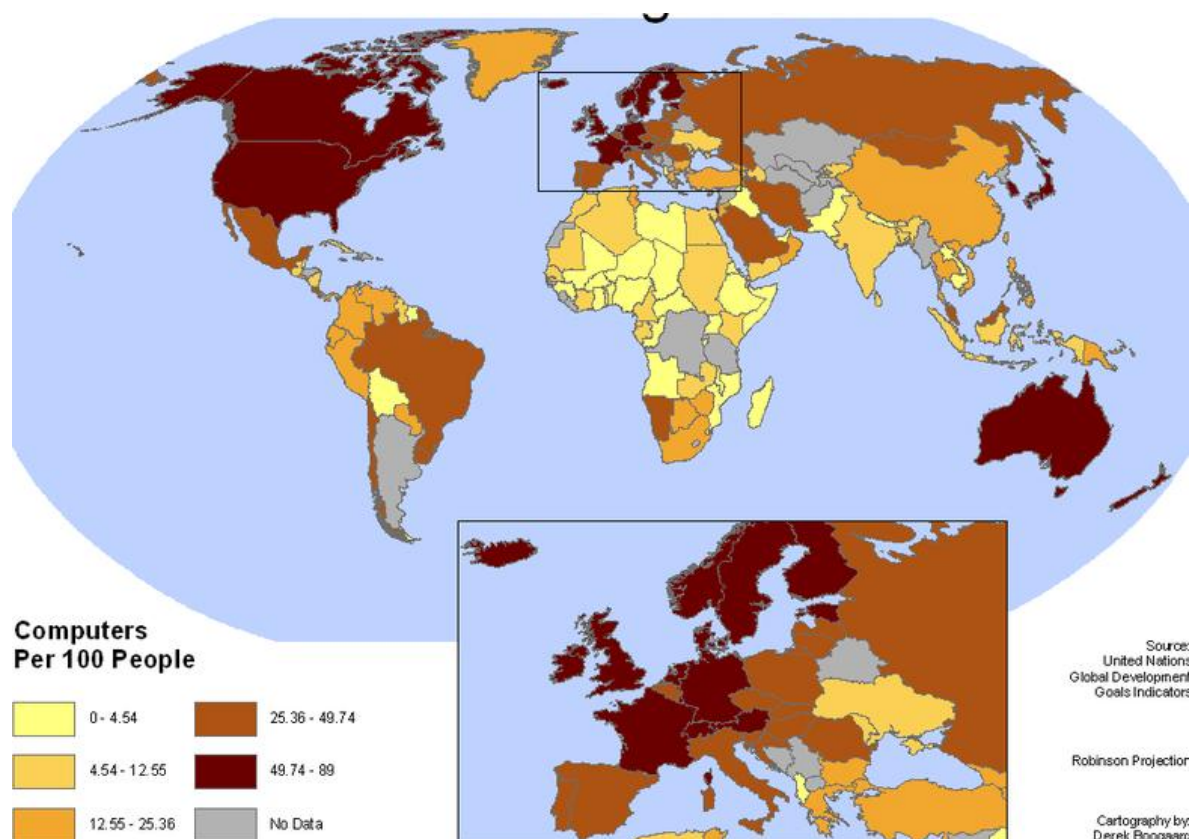


Figure 7: The illustration of digital divide at the country level

Digital Multimedia Broadcasting (DMB): (TEL, W20) is a digital radio transmission technology developed in South Korea as part of the national IT project for sending multimedia such as TV, radio and datacasting to mobile devices such as mobile phones. This technology, sometimes known as mobile TV, was originally developed as the next generation digital technology to replace the FM radio. The world's first official mobile TV service started in South Korea in May 2005, although trials were available much earlier. It can operate via satellite (S-DMB) or terrestrial (T-DMB) transmission.

Receivers are integrated in car navigation systems, mobile phones, portable media players, laptop computers and digital cameras.



Figure 8 : DMB on a Samsung phone in South Korea

Digital Network: (HE) A telecommunication network in which information is converted into a series of distinct electronic pulses and then transmitted as a digital bitstream.

Digital Signature: (ECOM, IS) A digital code that can be attached to an electronically transmitted message that uniquely identifies the sender. Like a written signature, the purpose of a digital signature is to guarantee that the individual sending the message really is who he or she claims to be. Digital signatures are especially important for electronic commerce and are a key component of most authentication schemes. To be effective, no one can be able to forge digital signatures. There are a number of different encryption techniques to guarantee this level of security. It can also be defined as a digital guarantee that a file has not been altered, as if it were carried in an electronically sealed envelope.

Direct Digital Marketing: (ECM) Direct digital marketing, also known as "DDM," is a type of marketing that is done exclusively through digital means. It may be used to supplement or even replace traditional physical marketing strategies. The primary channels of direct digital marketing include e-mail and the Web.

Distributed Denial of Service (DDoS): (IS) An attack on a computer system or network that causes a loss of service to users, typically the loss of network connectivity and services, by consuming the bandwidth of the victim network or overloading the computational resources of the victim system through a system of computers, which are usually zombie computers compromised by viruses or Trojan horse programs.

DMZ: (IS) Demilitarized zone. Network added between a private and a public network to provide additional layer of security.

DNS (Domain Name System or Domain Name Server): (INT) System that stores information associated with domain names in a distributed database on networks, such as the Internet.

Domain Name: (INT) The registered name of an individual or organization eligible to use the Internet. Domain names have at least two parts and each part is separated by a dot (point). The name to the left of the dot is unique for each top-level domain name, which is the name that appears to the right of the dot. For instance, the International Telecommunication Union's domain name is itu.int. "ITU" is a unique name within the generic top-level domain (gTLD) of "int".

DoS (Denial of Service): (IS) An attack designed to render a computer or network incapable of providing normal services. The most common DoS attacks will target the computer's network bandwidth or connectivity. Bandwidth attacks flood the network with such a high volume of traffic that all available network resources are consumed and legitimate user requests cannot get through. Connectivity attacks flood a computer with such a high volume of connection requests, that all available operating system resources are consumed, and the computer can no longer process legitimate user requests.

Dot Matrix Printer: (HE) A printer that uses pins to produce characters made up of small dots. This kind of printer is generally used by organizations that want to produce form letters or mailing labels economically.

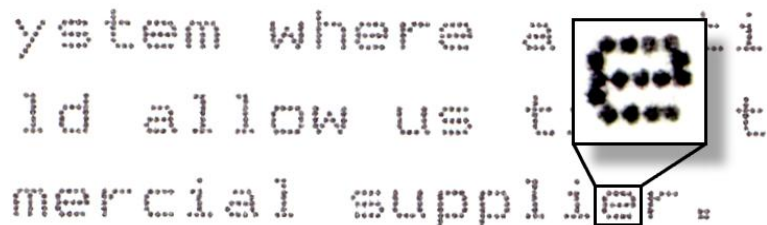


Figure 9: Typical output of a dot matrix printer

DSLAM (Digital Subscriber Line Access Multiplexer): (TEL) A device, located at the central office of a DSL provider, that separates and routes the voice-frequency signals and data traffic on a DSL line.

Dual Control: (IS, GEN) Process of using two or more separate entities (usually persons) operating in concert to protect sensitive functions or information. Both entities are equally responsible for the physical protection of materials involved in vulnerable transactions. No single person is permitted to access or use the materials (for example, the cryptographic key). For manual key generation, conveyance, loading, storage, and retrieval, dual control requires dividing knowledge of the key among the entities.

DVB (Digital Video Broadcasting): (HE, TEL) An open standard for digital television maintained by the DVB Project, an industry consortium with more than 270 members, and published by a Joint Technical Committee (JTC) of the European Telecommunications Standards Institute (ETSI), the European Committee for Electrotechnical Standardization (CENELEC) and the European Broadcasting Union (EBU). A number of DVB standards exist including DVB-C (Cable), DVB-H (Handheld), DVB-T (Terrestrial Television) and RCS (Return Channel via Satellite).

E-Bill (Electronic Bill): (ECOM, EGOV) A bill presented or delivered via e-mail or the Internet.

E-Book (Electronic Book): (GEN). A book stored in digitized form, which can be downloaded over the Web and read on a PC, tablet computer, personal digital assistant, e-book reader or other electronic device. Also a small reading device that displays downloaded digital text.

E-Cash (Electronic Cash): (ECOM) Currency that can be loaded onto smart cards, PCs, remote servers or handheld devices and used to purchase goods and services. It is typically used for low-value transactions and allows anonymous purchasing.

E-Choupal: (GEN) A project that places computers with Internet access in rural farming village. The computer, typically housed in the farmer's house, is linked to the Internet via phone lines or, increasingly by a VSAT connection.

E-Commerce (Electronic Commerce): (ECOM) Term used to describe transactions that take place online where the buyer and seller are remote from each other.

EDGE (Enhanced Data Rates for GSM Evolution): (TEL) It acts as an enhancement to 2G and 2.5G General Packet Radio Service (GPRS) networks. This technology works in TDMA and GSM networks. EDGE (also known as EGPRS) is a superset to GPRS and can function on any network with GPRS deployed on it, provided the carrier implements the necessary upgrades. EDGE provides Enhanced GPRS (EGPRS), which can be used for any packet-switched applications such as an Internet connection. High-speed data applications such as video services and other multimedia benefit from EGPRS's increased data capacity.

EDI (Electronic Data Interchange): (ECOM) A standard that has been in use since the late 1980s for the electronic transfer of order data between business partners as well as for its subsequent electronic processing.

EDIFACT (Electronic Data Interchange for Administration, Commerce and Transport): (ECOM) A standard defined and maintained by United Nations (UN) committees for the electronic exchange of trade documents and commercial messages.

EHR (Electronic Health Record): (HI) A real time patient health record with access to evidence-based decision support tools that can be used to aid clinicians in decision making. An EHR is a medical record or any other information relating to the past, present or future physical and mental health, or condition of a patient which resides in computers which capture, transmit, receive, store, retrieve, link, and manipulate multimedia data for the primary purpose of providing health care and health-related services. The EHR can also support the collection of data for uses other than clinical care, such as billing, quality management, outcome reporting, and public health disease surveillance and reporting.

Electronic Blackboard: (HE) A device that looks like an ordinary blackboard or whiteboard, but can be interfaced with a computer.

E-Marketplace: (ECOM, INT) A virtual market where buyers and sellers meet just like in a traditional market just that in this case, all interactions are done virtually.

Emoticons: (SN, FB, INT) Are the little text-based faces and objects that you often see in e-mail and online chat. They help give the reader a sense of the writer's feelings behind the text. For example, the classic :) face shows that the writer is happy about something or that his message is in good humor.

EMR (Electronic Medical Record): (HI) A computer-based patient medical record. An EMR facilitates access of patient data by clinical staff at any given location; accurate and complete claims processing by insurance companies; building automated checks for drug and allergy interactions; clinical notes; prescriptions; scheduling; sending to and viewing by labs; The term has become expanded to include systems which keep track of other relevant medical information. The practice management system is the medical office functions which support and surround the electronic medical record.

Encryption: (IS) A way of making data unreadable to everyone except the receiver. An increasingly common way of sending credit card numbers over the Internet when conducting commercial transactions. Can also be explained as the process of converting information into an unintelligible form except to holders of a specific cryptographic key. Use of encryption protects information between the encryption process and the decryption process (the inverse of encryption) against unauthorized disclosure.

ENUM: (TEL, HE) Standard adopted by Internet Engineering Task Force (IETF), which uses the domain name system (DNS) to map telephone numbers to Web addresses or uniform resource locators (URL). The long-term goal of the ENUM standard is to provide a single number to replace the multiple numbers and addresses for users' fixed lines, mobile lines, and e-mail addresses.

EPOS (Electronic Point of Sale): (ECOM) A category of systems used by retailers to capture sales and other transactional data at the point of sale, either via manual entry into a network-connected workstation or via automatic capture through bar-code scanners or electronic cash registers.

E-Purse (Electronic Purse): (ECOM) A storage location of electronic monetary units. Also an application that allows value (such as e-cash) to be loaded into a smart card or handheld device that then can be used to make purchases. A device or card can hold multiple e-purse applications designed for specific uses (for example, an e-purse on a student card or device could be restricted to purchases at a bookstore).

ERP (Enterprise Resource Planning): (ITM, GEN) Business strategies and enabling software that integrate manufacturing, financial and distribution functions to dynamically balance and optimize enterprise resources. ERP software suites include integrated manufacturing, distribution and financial applications. ERP can enable enterprises to optimize their business processes and analysis capabilities for improved speed and efficiency.

eRx (Electronic Prescribing): (HI) A type of computer technology whereby physicians use handheld or personal computer devices to review drug and formulary coverage and to transmit prescriptions to a printer or to a local pharmacy. E-prescribing software can be integrated into existing clinical information systems to allow physician access to patient specific information to screen for drug interactions and allergies.

Export: (GEN) To save information from one computer or program to another.

Extranet: (INT, ITM) A technology that permits users of one organization's intranet to enter portions of another organization's intranet in order to conduct business transactions or collaborate on joint projects.

Facebook: (SN, FB, W20) Facebook is a social networking website that was originally designed for college students, but is now open to anyone 13 years of age or older. Facebook users can create and customize their own profiles with photos, videos, and information about themselves. Friends can browse the profiles of other friends and write messages on their pages. For mobile phone users Facebook offers a number of features, such as Facebook Mobile Web (m.facebook.com), Facebook Mobile Texts and Facebook Mobile Uploads.

Fiber Optics: (HE, TEL) A high-bandwidth transmission technology that uses light to carry digital information. One fiber-optic cable carries hundreds of thousands of voice or data circuits. These cables, or light guides, replace conventional coaxial cables and wire pairs. Fiber transmission facilities occupy far less physical volume for an equivalent transmission capacity. Optical fiber is also immune to electrical interference.

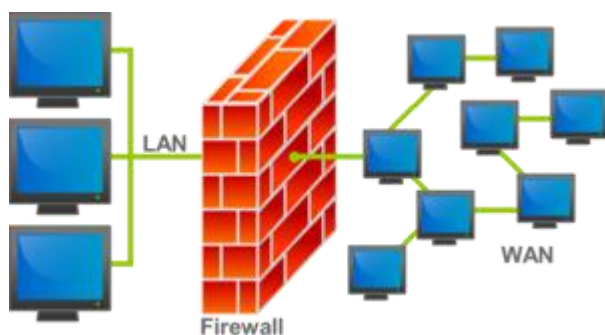


Figure 10: Illustration of a firewall in a computer network

Firewall: (IS, HE, SE) Hardware, software, or both that protect resources of one network from intruders from other networks. Typically, an enterprise with an intranet that permits workers access to the wider Internet must have a firewall to prevent outsiders from accessing internal private data resources. A firewall is a part of a computer system or network that is designed to

block unauthorized access while permitting authorized communications. (Please see the annex for a detailed description)

First Mile: (TEL, GEN) A topology in which the user or a local service provider – or perhaps even an apartment building company – owns the access network and connects to service providers using its own upstream links. Also called as ‘Last Mile’ when looking from the service provider’s end.

Fixed Line: (TEL) A physical line connecting the subscriber to the telephone exchange. Typically, fixed-line network is used to refer to the PSTN to distinguish it from mobile networks.

Flat-Panel Display: (HE) A type of desktop computer monitor that consists of an LCD in a thin case. A flat-panel display has a much smaller environmental footprint than the traditional CRT.

Flickr: (SN, W20) Flickr is an image hosting and video hosting website, web services suite, and online community. In addition to being a popular website for users to share and embed personal photographs, the service is widely used by bloggers to host images that they embed in blogs and social media.

Folksonomy: (SN, W20) Taxonomies are centralized ways of classifying information - as in libraries. Folksonomies are the way people, or “folk” create less structured ways of classifying information by adding tags.

Fotolog: (SN, W20) Fotolog.com is a Web 2.0-based shared photoblog web site. With over 30 million registered users, it is one of the oldest and largest sites for sharing pictures through online photo diaries or photo blogs.

Free and Open Source Software (FOSS): (GEN, SE) Free and open source software (F/OSS, FOSS) or free/libre/open source software (FLOSS) is software that is liberally licensed to grant the right of users to use, study, change, and improve its design through the availability of its source code. This approach has gained both momentum and acceptance as the potential benefits have been increasingly recognized by both individuals and corporate players. In the context of free and open source software, free refers to the freedom to copy and re-use the software, rather than to the price of the software. The Free Software Foundation, an organization that advocates the free software model, suggests that, to understand the concept, one should "think of free as in free speech, not as in free beer". Free and open source software is an inclusive term which covers both free software and open source software which, despite describing similar development models, have differing cultures and philosophies. Free software focuses on the philosophical freedoms it gives to users while open source focuses on the perceived strengths of its peer-to-peer development model. FOSS

is a term that can be used without particular bias towards either political approach. Free software licenses and open source licenses are used by many software packages. While the licenses themselves are in most cases the same, the two terms grew out of different philosophies and are often used to signify different distribution methodologies.

Friendster: (SN, W20) Friendster is a social networking website that allows users to contact other members, maintain those contacts, and share online content and media with those contacts. Users may share videos, photos, messages and comments with other members via their profile and their network. Friendster was founded to create a safer, more effective environment for meeting new people by browsing user profiles and connecting to friends, friends of friends and so on, allowing members to expand their network of friends more rapidly than in real life, face-to-face scenarios. www.friendster.com

FTP (File Transfer Protocol): (INT) A standard Internet protocol and the simplest way to exchange files between computers on the Internet. Like the hypertext transfer protocol (HTTP), which transfers displayable Web pages and related files, and the simple mail transfer protocol (SMTP), which transfers e-mail, FTP is an application protocol that uses the Internet's TCP/IP protocols. FTP is commonly used to transfer Web page files from their creator to the computer that acts as their server for everyone on the Internet. It's also commonly used to download programs and other files to your computer from other servers.

Full Unbundling: (Sometimes referred to as access to raw copper). (TEL) A form of network unbundling where the copper pairs connecting a subscriber to the Main Distribution Frame (MDF) are leased by a new entrant from the incumbent. The new entrant takes total control of the copper pairs and can provide subscribers with all services including voice and ADSL. The incumbent still has ownership of the unbundled loop and is responsible for maintaining it.

G2B (Government to Business): (EGOV) Government to business – e-government application

G2C (Government to Citizen): (EGOV) Government to citizen – e-government application

G2G (Government to Government): Government to government – e-government application

Gateway: (HE, INT) A machine that links two networks using different protocols.

Gigabyte (G or GB): (HE, SE) A measurement of the storage capacity of a device. One gigabyte represents 1024 megabytes. This term may be abbreviated as G or GB; however, GB is the clearer abbreviation since G also stands for the metric prefix Giga (meaning 1 billion). A Gigabyte is often referred to as a "Gig."

GIS (Geographic Information Systems or Geospatial Information Systems): (GEN) Sets of tools that capture, store, analyze, manage, and present data that are linked to location(s). In the simplest terms, GIS is the merging of cartography, statistical analysis, and database technology. GIS may be used in archaeology, geography, cartography, remote sensing, land surveying, public utility management, natural resource management, precision agriculture, photogrammetry, urban planning, emergency management, navigation, aerial video, and localized search engines. As GIS can be thought of as a system, it digitally creates and "manipulates" spatial areas that may be jurisdictional, purpose or application oriented for which a specific GIS is developed. Hence, a GIS developed for an application, jurisdiction, enterprise, or purpose may not be necessarily interoperable or compatible with a GIS that has been developed for some other application, jurisdiction, enterprise, or purpose. What goes beyond a GIS is a spatial data infrastructure (SDI), a concept that has no such restrictive boundaries. Therefore, in a general sense, the term describes any information system that integrates stores, edits, analyzes, shares, and displays geographic information for informing decision making. GIS applications are tools that allow users to create interactive queries (user-created searches), analyze spatial information, edit data, maps, and present the results of all these operations. Geographic information science is the science underlying the geographic concepts, applications and systems. GIS can be studied in degree and certificate programs at many universities.

Global Positioning System (GPS): This is a space-based global navigation satellite system (GNSS) that provides reliable location and time information in all weather and at all times and anywhere on or near the Earth when and where there is an unobstructed line of sight to four or more GPS satellites. It is maintained by the United States government and is freely accessible by anyone with a GPS receiver. In addition to GPS other systems are in use or under development. The Russian GLObal NAVigation Satellite System (GLONASS) was for use by the Russian military only until 2007. There are also the planned Chinese Compass navigation system and Galileo positioning system of the European Union (EU).

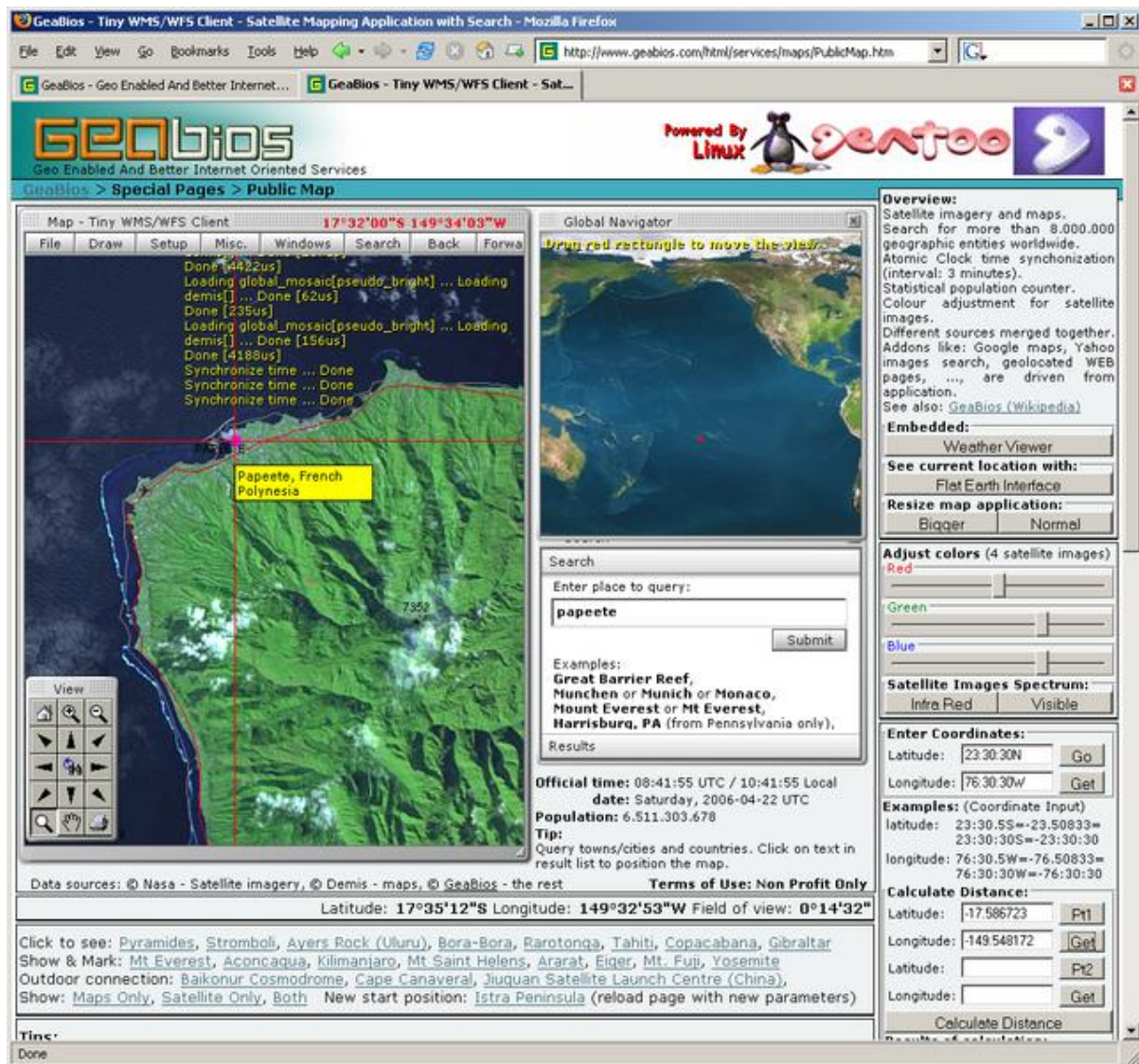


Figure 11: A GIS application

Google Docs: (SN, W20) Google Docs is a free, Web-based word processor, spreadsheet, presentation, form, and data storage service offered by Google. It allows users to create and edit documents online while collaborating in real-time with other users. <http://docs.google.com/#all>

Government Interoperability Framework (GIF): (EGOV) A set of standards and guidelines that a government uses to specify the preferred way that its agencies, citizens and partners will interact with each other. It includes high-level policy statements, technical content, process documentation, implementation and compliance regimes.

GPRS: (TEL, HE) General Packet Radio Service. Mobile data service available to users of GSM mobile phones. Recognized for efficient use of limited bandwidth. Particularly suited for sending and receiving small bursts of data, such as e-mail and web browsing.

Green Growth: (CC, GEN) Economic development that takes into consideration the need to reduce energy consumption and water use, conserve renewable natural resources and limit waste and pollution. The Global Green Growth Institute (GGGI), an institution established by the government of the Republic of Korea, defines Green Growth as “Growth while reducing carbon emissions, increasing sustainability, and strengthening climate resilience”.

GSM (Global System for Mobile Communications): (TEL) A popular standard for mobile phones. The ubiquity of GSM standard makes international roaming very common between mobile phone operators, enabling subscribers to use their phones in many parts of the world.

GUI (Graphical User Interface): (GEN) A visual computer environment that permits the user to click on icons or select options from a menu.

Hack/Crack or Hacker/Cracker: (IS, ECOM) To hack means to write one's own solution to a computer problem because no pre-written program or function exists to solve the problem. Programmers who are "hacking away" are starting from scratch and writing a new language or program to achieve the programming goal. However, "hacker" is often used to describe an unauthorized person who modifies a program by changing its code to corrupt or steal data. In self-defense, the hacking community has adopted the term "cracker" for someone whose sole aim is to break into secure systems. The simplest form of hacking - extremely slow but ultimately effective - is brute forcing, in which the computer is programmed simply to try all possibilities until the correct solution is reached. Hackers and crackers looking for quick results use algorithms or other logical shortcuts. Following security measures, like data encryption, help prevent crackers from entering a system.

Health Information Technology: (HI) The application of information processing involving both computer hardware and software that deals with the storage, retrieval, sharing, and use of health care information, data, and knowledge for communication and decision making.

hi5: (SN, W20) A social networking site that allows users to create an online profile in order to show information such as interests, age and hometown and create personal photo albums, play online games, and set up a music player in the profile. Users can also send friend requests via e-mail to

other users. As the world's largest social entertainment destination, Hi5's focus is on delivering a fun, interactive, and immersive social experience online to the users around the world.

Hit: (GEN, INT) A single request for information made by a client computer from a Web server. The popularity of a given Web site is often measured by the number of hits it receives. However, this number can be extremely misleading, since a particular Web page may contain a number of elements, each one of which will be counted as a hit when a visitor opens that page. Thus the number of hits recorded for a particular Web page can be significantly greater than the actual number of visitors to that page.

HTTP: (GEN, INT) Hypertext transfer protocol. Open-Internet protocol to transfer or convey information on the World Wide Web.

Human Flesh Search (HFS): (GEN, SN, W20) This is an Internet phenomenon recorded primarily in China. It means massive researching using Internet media such as blogs and forums. It has generally been stigmatized as being for the purpose of identifying and exposing individuals to public humiliation, usually out of nationalistic sentiment, or to break the Internet censorship. More recent analyses, however, have shown that it is also used for a number of other reasons, including exposing government corruption, identifying hit and run drivers, and exposing scientific fraud, as well as for more "entertainment" related items such as identifying people seen in pictures.

Hyperlink: (INT) An element in a hypertext document that is highlighted by means of underlining or the use of a different color. When a user clicks the highlighted element, the user is connected with another element in the same document or another document.

ICT for Development (ICT4D, ICT4Dev or ICTD): (GEN) Information and Communication Technologies for Development (ICT4D) is a general term referring to the application of Information and Communication Technologies (ICTs) within the field of socioeconomic development, international development and human rights. ICT4D concerns itself with directly applying information technology approaches to poverty reduction, governance and development of the society in general rather than limiting the privileges to a chosen few. ICTs can be applied either in the direct sense, wherein their use directly benefits the disadvantaged population, or in an indirect sense, wherein the ICTs assist aid organizations or non-governmental organizations or governments or businesses in order to improve general socio-economic conditions. In many impoverished regions of the world, legislative and political measures are required to facilitate or enable application of ICTs, especially with respect

to monopolistic communications structures and censorship laws. The concept of ICT4D can be interpreted as dealing with disadvantaged populations anywhere in the world, but is more typically associated with applications in developing countries. The field is becoming recognized as an interdisciplinary research area as can be noted by the growing number of conferences, workshops and publications. Many international development agencies recognize the importance of ICT4D. While the dominant terminology used in this field is "ICT4D", alternatives include ICT4Dev, ICTD and development informatics.

ICT Governance Framework: (EGOV) A guide for governments aiming to maximize the use of ICT in the pursuit of development goals. This framework is usually comprised of 1) a set of principles; 2) a decision-making hierarchy; and 3) a tailor-made suite of reporting and monitoring processes.

IDC (Internet Data Centre): (TEL, INT) A data centre (typically operated by a third party) containing Internet-related facilities for the use of enterprises, Internet service providers, application service providers (ASPs), e-commerce companies and other firms. IDCs typically provide server outsourcing, hosting and collocation services, Internet connectivity, virtual private networks (VPNs), and other network and transport services.

Identity Theft: (IS) Creating a false identity using someone else's identifying information (e.g., name, Social Security Number, birthday) to create new credit cards or establish loans which then go into default and affect the original victim's credit record.

Import: (GEN) To retrieve any text or other information created by one program (for example, images created by a graphics program) and transfer it to another program (for example, a spreadsheet program).

Informatics or Information Science: (GEN) The study of information. It is often, though not exclusively, studied as a branch of Computer Science and Information Technology (IT) and is related to database, ontology and software engineering. Informatics is primarily concerned with the structure, creation, management, storage, retrieval, dissemination and transfer of information. Informatics also includes studying the application of information in organizations, on its usage and the interaction between people, organizations and information systems.

Information Processing: (GEN) The coordination of people, equipment, and procedures to handle information, including the storage, retrieval, distribution, and communication of information. The

term information processing embraces the entire field of processing words, figures, graphics, video, and voice input by electronic means.

Infrared (IR): (HE) Electromagnetic radiation of wavelengths longer than visible light. IR is typically used to transmit data through the air, for short distances, in a straight line.

Ink-Jet Printer: (HE) A nonimpact printer that forms characters by spraying tiny, electrically charged ink droplets on paper.

Input Device: (HE, GEN) A hardware component (such as a mouse, a keyboard, or a microphone) that lets the user input information.

Instant Messaging (IM): (SN, FB, W20) Chatting with others using an IM tool like AOL Instant Messenger, Microsoft Live Messenger or Yahoo Messenger, NateON Messenger. The tools allow one to indicate whether or not one is available for a chat, and if so can be a good alternative to emails for a rapid exchange. Problems arise when people in a group are using different IM tools that don't connect. One way around this is to use a common Voice over IP tool like Skype that also provides IM.

Intelligent Network: (HE, INT) A service-independent, switched overlay network to the public switched telephone network (PSTN), enabling advanced services such as toll-free dialing, virtual private networks (VPNs), call routing and credit/calling card services. A standard architecture for INs is being defined in efforts of various international bodies such as the European Telecommunications Standards Institute, the International Telecommunication Union and the American National Standards Institute.

Interactive Voice Response (IVR): (HE) Phone technology that allows a computer to detect voice and touch tones using a normal phone call.

Interconnection: (TEL) The physical connection of separate telephone networks to allow users of those networks to communicate with each other. Interconnection ensures interoperability of services and increases end users' choice of network operators and service providers.

Interface: (HE, SE) The components of the computer program that allow the user to interact with the information. Also defined as the electrical connection that links two pieces of equipment so that

they can communicate with each other. Also, the software that controls the interaction between the hardware and the user.

Internet Backbone: (TEN, INT) The high-speed, high capacity lines or series of connections that form a major pathway and carry aggregated traffic within the Internet.

Internet Content Provider: (INT) A person or organization that provides information via the Internet, either with a price or free of charge.

Internet of Things: (GEN, HE, INT) In computing, the Internet of things, also known as the Internet of objects, refers to the networked interconnection of everyday objects. It is described as a self-configuring wireless network of sensors whose purpose would be to interconnect all things. For example, this technology, if it can be applied correctly will reduce the loss or theft of objects to zero as the location of them would be always known.

Interoperability: (EGOV, GEN) Capability of IT systems and applications to communicate with each other across platforms.

Intranet: (GEN, INT) A private network established by an organization for the exclusive use of its employees. Firewalls prevent outsiders from gaining access to an organization's intranet.

Intrusion Detection: (IS) Techniques that attempt to detect intrusion into a computer or network by observation of actions, security logs, or audit data. Detection of break-ins or attempts either manually or via software expert systems that operate on logs or other information available on the network.

Intrusion Detection Systems (IDS): (IS) These systems monitor network system files and logs to locate intruders who attempt to break into or misuse a computer system. The two main types of intrusion detection systems are anomaly detection and misuse detection. Anomaly detectors catch behavior that deviates from normal system use. Misuse detectors look for behavior that matches a known attack scenario.

IP (Internet Protocol): (INT) Network-layer protocol containing address information and some control information that enables packets to be routed. IP is the primary network-layer protocol in the Internet protocol suite.

IP (Internet Protocol) Telephony: (INT) A technology that supports voice, data and video transmission via IP-based computer network. IP telephony is used as a generic term for the conveyance of voice, fax and related services, partially or wholly over packet-based, IP-based networks.

IP Address: (INT) Numeric code that uniquely identifies a particular computer on the Internet.

IP Spoofing: (IS, INT) Technique used by an intruder to gain unauthorized access to computers. Intruder sends deceptive messages to a computer with an IP address indicating that the message is coming from a trusted host.

IPR (Intellectual Property Rights): (GEN) Copyrights, patents and trademarks giving creators the right to prevent others from using their inventions, designs or other creations. The ultimate aim is to act as an incentive to encourage the development of new technology and creations which will eventually be available to all. The main international agreements are the World Intellectual Property Organization's (WIPO) Paris Convention for the Protection of Industrial Property (patents, industrial designs, etc.), the Berne Convention for the Protection of Literary and Artistic Works (copyright), and the World Trade Organization's (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

IPTV (Internet Protocol Television): (INT, GEN, TEL) A system where a digital television service is delivered by using Internet Protocol over network infrastructure, which may include delivery by a broadband connection.

ISP (Internet Service Provider): (INT) ISPs provide end users access to the Internet. Internet Access Providers (IAPs) may also provide access to other ISPs. ISPs may offer their own proprietary content and access to online services such as e-mail.

JAVA: (SE) A programming language that provides a system for developing and deploying cross-platform applications.

kbps (Kilo Bits Per Second): One thousand bits per second. A measure to calculate the speed of a data transmission. kbps is used as a rating of relatively slow transmission speed compared to the common Mbps or Gbps ratings.

Key: (IS) In cryptography, a key is an algorithmic value applied to unencrypted text to produce encrypted text. The length of the key generally determines how difficult it will be to decrypt the text in a given message.

Kilobyte (K or KB): (HE, SE) A measurement of the storage capacity of a device. One kilobyte represents 1024 bytes. Kilobyte may be abbreviated K or KB; however, KB is the clearer abbreviation since K also stands for the metric prefix kilo.

Kiosk: (ECOM) A self-service terminal typically used for one of three functions: to support noncash transactions (such as ordering tickets or making reservations), to dispense noncash items (such as documents, tickets or coupons), or to provide access to information (such as rate quotations, product information or interactive sessions with product specialists). Kiosks typically do not dispense cash.

Knowledge Economy: (GEN) Refers to the use of knowledge to produce economic benefits. The phrase is a way of referring to the manner in which various high-technology businesses, especially computer software, telecommunications and virtual services, as well as educational and research institutions, can contribute to a country's economy.

Language Technologies or Human Language Technologies (HLT): (HE,SE) Enables computer-based systems to understand what humans are saying, and underpins automatic machine translation.

Laptop Computer: (HE) A portable, or notebook computer.

Laser Printer: (HE) A nonimpact printer that produces sharper text and graphics than any other type of printer.

Last Mile: (GEN, TEL) The "last mile" is the final leg of delivering connectivity from a communications provider to a customer. The phrase is often used by the telecommunications and cable television industries. It is typically seen as an expensive challenge because "fanning out" wires and cables is a considerable physical undertaking. Because the last mile of a network to the user is also the first mile from the user to the world, the term "first mile" is sometimes used. To solve the problem of providing enhanced services over the last mile, some firms have been mixing networks for decades. One example is Fixed Wireless Access, where a wireless network is used instead of wires to connect a stationary terminal to the wire-line network.

LCD (Liquid Crystal Display): (HE) A type of monitor typically used on laptop computers or portable computers.

Learning Content Management System (LCMS): (GEN) This is an electronic environment that serves as a content repository, which stores, manages, and maintains the learning content. The purpose of a LCMS is to manage the students' learning content and often times the development of that content. The LCMS separates the content from its delivery and look, and feel.

Leased Line: (TEL) A dedicated circuit, typically supplied by the telephone company or transmission authority that permanently connects two or more user locations and is for the sole use of the subscriber. Also called a private line, tie line or dedicated facility. Also defined as a point-to-point communication channel or circuit that is committed by the network operator to the exclusive use of an individual subscriber. Under national law, leased lines may or may not be permitted to interconnect with the public switched network.

Line Sharing: (TEL, HE) A form of network unbundling that allows a competitive service provider to offer ADSL using the high-frequency portion of a local loop at the same time that an incumbent continues to offer standard switched voice service over the low-frequency portion of the same loop.

Linearizability: (INT) When testing a website for barrier freedom, the linearizability of tables is checked. Tables are processed by the access software of blind Internet users cell by cell, from left-to-right, top to bottom. If tables are "linearizable", the cell contents make sense when presented in this order.

LinkedIn: (SN) LinkedIn is a business-oriented social networking site. Founded in December 2002 and launched in May 2003, it is mainly used for professional networking.

Listening: (IS) The art of skimming feeds to see what topics are bubbling up, and also setting up searches that monitor when oneself or one's organization is mentioned.

Livejournal: (INT, SN) LiveJournal is a web-based service that allows its users to create and update online journals.

LLU (Local Loop Unbundling): (TEL, HE) The process of requiring incumbent operators to open the last mile of their legacy networks (networks based on older, outdated protocols) to competitors.

Logical Framework Approach: (GEN) A management tool that helps the design, monitoring and evaluation of international development projects. It is developed by the United States Agency for International Development.

M2M (Machine-to-Machine): (GEN, HE) A broad label that can be used to describe any technology that enables automated wired or wireless communication between mechanical or electronic devices. M2M allows networked machines to exchange information and perform actions without the manual assistance of humans.

Mail Merge: (GEN) The process of taking information from a database and inserting it into a form, letter or other document in order to customize the document for an individual recipient. For example, mail merge can be used to create the inside address and the salutation for a form letter.

Mail-Bombing: (IS) Sending large numbers of unwanted e-mail messages to a single recipient or to a group of such recipients. To be distinguished from spamming. Mail-bombing is a form of denial of service.

Malware: (IS) The family of malicious software in the form of viruses, Trojan horses, or worms, meant to destroy data or disable service.

Mbps (Megabits per Second): One thousand kilo Bits Per Second. A relatively higher data transmission speed.

M-Commerce (Mobile Commerce): (ECOM) A category of commerce that includes any purchase transaction completed using a wireless device, such as a cellular phone, PC or personal digital assistant. M-Commerce includes paying for a subscription to get content "pushed" to a mobile device, purchasing a product via a mobile device or using such a device to obtain a service for which a fee is charged. Purchases that are researched or arranged via a wireless device, but completed and settled by other means, are classified as mobile enabled transactions.

Media Discontinuity: (ECOM) Media discontinuities are points in a (business) process at which data is transferred from one storage medium to another. Media discontinuities reduce efficiency and generally increase the throughput time within a process. Media discontinuities occur in particular in cases where the IT support for a process has only been partially implemented. As part of the introduction of e-government, it is important to minimize the number of media discontinuities.

Megabyte (M or MB): (HE, SE) A measurement of the storage capacity of a device. One megabyte represents more than 1 million bytes. Megabyte may be abbreviated M or MB; however, MB is clearer since M also stands for the metric prefix mega (meaning 1 million). A megabyte is often referred to as a “meg.”

Mesh Network: A way to route data, voice and instructions between nodes. It allows for continuous connections and reconfiguration around blocked paths by “hopping” from node to node until a connection can be established.

m-Government (Mobile Government): (EGOV) The use of mobile phone technologies by governments to interact with their citizens. For example, a security alert can be sent out as an SMS message to those travelling in unsafe countries.

MICR (Magnetic-Ink Character Recognition): (HE) Machine recognition and digitization of magnetically charged characters printed on paper.

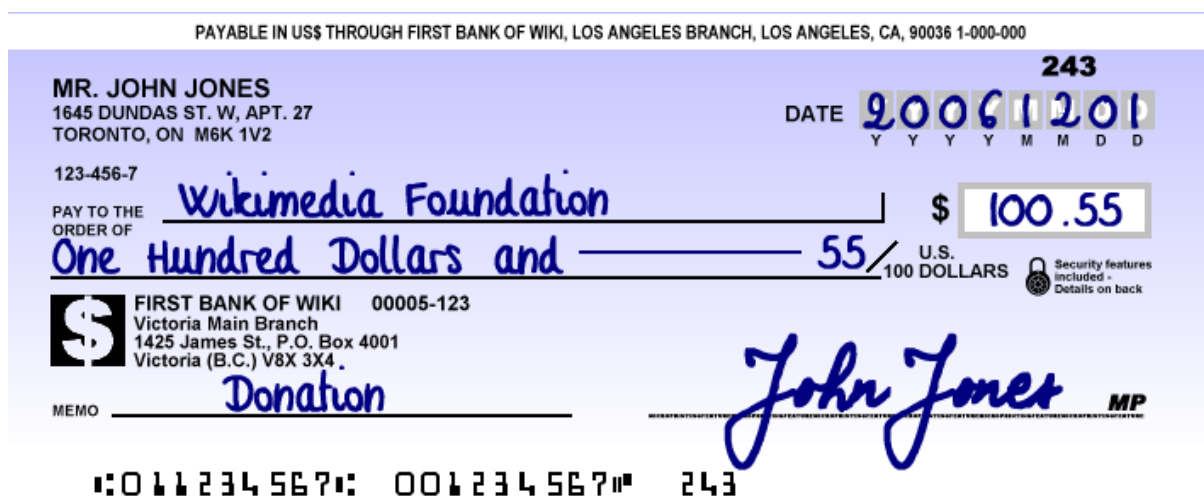


Figure 12 : A sample cheque that shows MICR lettering at the bottom of it

Microprocessor: (HE) An integrated circuit on a silicon chip that serves as the central processing unit of a computer.

M-Learning (Mobile Learning): (GEN) The use of a mobile device to access and study learning materials and for communicating with the institution, tutors and fellow students.

Mobile operating system: (HE, SE, W20) is the operating system that controls a mobile device or information appliance—similar in principle to an operating system such as Windows, Mac OS, or Linux that controls a desktop computer. However, they are simpler, and deal more with the wireless versions of broadband and local connectivity, mobile multimedia formats, and different input methods. Operating systems that can be found on smart phones include Nokia's Symbian, Google's Android, Apple's iOS, RIM's BlackBerry OS, Microsoft's Windows Phone, Linux, Palm/HP's WebOS, Samsung's Bada, Nokia's Maemo and MeeGo among many others.

Mobile software development: (ECOM, EGOV, SE, TEL) is the process of creating software for a mobile device. It also refers to the creation of special web and applications for mobile devices. This is often done using a mobile simulator on a personal computer and using different platforms and programming languages based on the target mobile device. There are many different hardware components found in mobile devices so their applications are developed using different software architectures. It is also made more difficult because users of mobile applications have diverse preferences.

Moblog: (GEN) A blog that can be updated by posting entries directly from a PDA, phone, camera phone or other portable device. Mobloggers are those who post to their blogs in this way.



Figure 13 : A modem

Modem: (HE, INT) An acronym derived from modulator/demodulator. A device that (1) converts digital signals into tones for transmission over telephone lines and (2) converts the tones back into digital signals at the receiving end.

Moodle (abbreviation for **Modular Object-Oriented Dynamic Learning Environment**):

(SN, W20) A free and open-source e-learning software platform. Moodle helps educators

create online courses with a focus on interaction and collaborative construction of content. Moodle's open source license and modular design allow developers to create additional modules and features. www.moodle.org

MP3: (TEL, HE) MPEG-1 Audio Layer-3 (MPEG stands for Moving Pictures Experts Group). A standard technology and format for compression of a sound sequence into a very small file (about one-twelfth the size of the original file) while preserving the original level of sound quality when it is played. Its more accurate name is MPEG-1 Audio Layer 3. MP3 uses a compression algorithm to reduce the size of audio data. It is a popular audio format on many mobile devices.

Multimedia Messaging Service (MMS): (TEL, HE) A standard for telephony messaging systems that allows sending messages that include multimedia objects (images, audio, video, rich text).

Multiprotocol Label Switching (MPLS): (TEL, INT) is a mechanism in high-performance telecommunications networks which directs and carries data from one network node to the next with the help of labels. MPLS makes it easy to create 'virtual links' between distant nodes. It can encapsulate packets of various network protocols.

Multitasking: (GEN, HE) The ability of a computer to execute more than one program at a time. The derivative term "multitasking" means playing games at the computer instead of working.

MVNO (Mobile Virtual Network Operator): (TEL) A company that provides mobile network services through a contract with a mobile network operator. At the low end of the MVNO range is the company that offers mobile-telephony services through an agreement with a mobile-telephony spectrum owner, with the new entrant controlling the branding, marketing and tariff structure of the offering to customers.

MySpace: (SN, W20) MySpace is a social networking site in the United States. Users can search for friends or make new friends, upload music, photos, or videos, receive comments from other users, and modify their profile. Myspace also has certain features like: Bulletins, Groups, MySpaceIM (instant messaging), MySpaceTV, Applications, MySpace Mobile, MySpace News, MySpace Classifieds, MySpace Karaoke, MySpace Polls, and MySpace Forums. www.myspace.com

Nanotechnology (aka Nanotech): (GEN) This is the study of manipulating matter on an atomic and molecular scale. Generally, nanotechnology deals with structures sized between 1 to 100 nanometre in at least one dimension, and involves developing materials or devices within that size. Quantum mechanical effects are very important at this scale, which is in the quantum realm. Nanotechnology is very diverse, ranging from extensions of conventional device physics to completely new

approaches based upon molecular self-assembly, from developing new materials with dimensions on the nanoscale to investigating whether we can directly control matter on the atomic scale.

NAT (Network Address Translation): (HE, INT) A tool used to protect private network IP addresses from the public Internet by translating a publicly available IP address into a private network IP address or addresses. While NAT can be used as a security tool, it is also used to reduce the network costs by reducing the number of public IP addresses necessary for a subscriber network. It also helps expand a network while protecting the current IP-based account scheme for that given network.

Netiquette: (INT) Etiquette or the set of rules while using the Internet, which is often referred to as the 'Net'. They are also applicable for formatting and composing e-mail messages. A common example is not using ALL CAPITALS (known as 'shouting') in text. Avoiding 'spamming' or 'junk mailing' is another good netiquette.

Netizen: (INT) A "citizen" of the Net, or Internet; an active participant in the Internet community.

Network: (FB, SN) A circle of friends and acquaintances that centres on a city, school, company, or military organization.

Next-Generation Network (NGN): (TEL, INT, HE) A broad term for certain kind of emerging computer network architectures and technologies. It generally describes networks that natively encompass data and voice (PSTN) communications, as well as (optionally) additional media such as video.

Number Portability: (TEL) The ability of a customer to transfer an account from one service provider to another without requiring a change in number. Other forms of portability allow end users to change residence or subscribe to a new form of service (i.e. ISDN) while retaining the same telephone number for their main telephone line.

OCR (Optical Character Reader): (GEN, HE) A device that can scan text from hard copy and enter it automatically into a computer for storage or editing. Also called an optical scanner.

Offline: (GEN, INT) Refers to the state in which a computer is temporarily or permanently unable to communicate with another computer (even though it is turned on and capable of performing other functions).

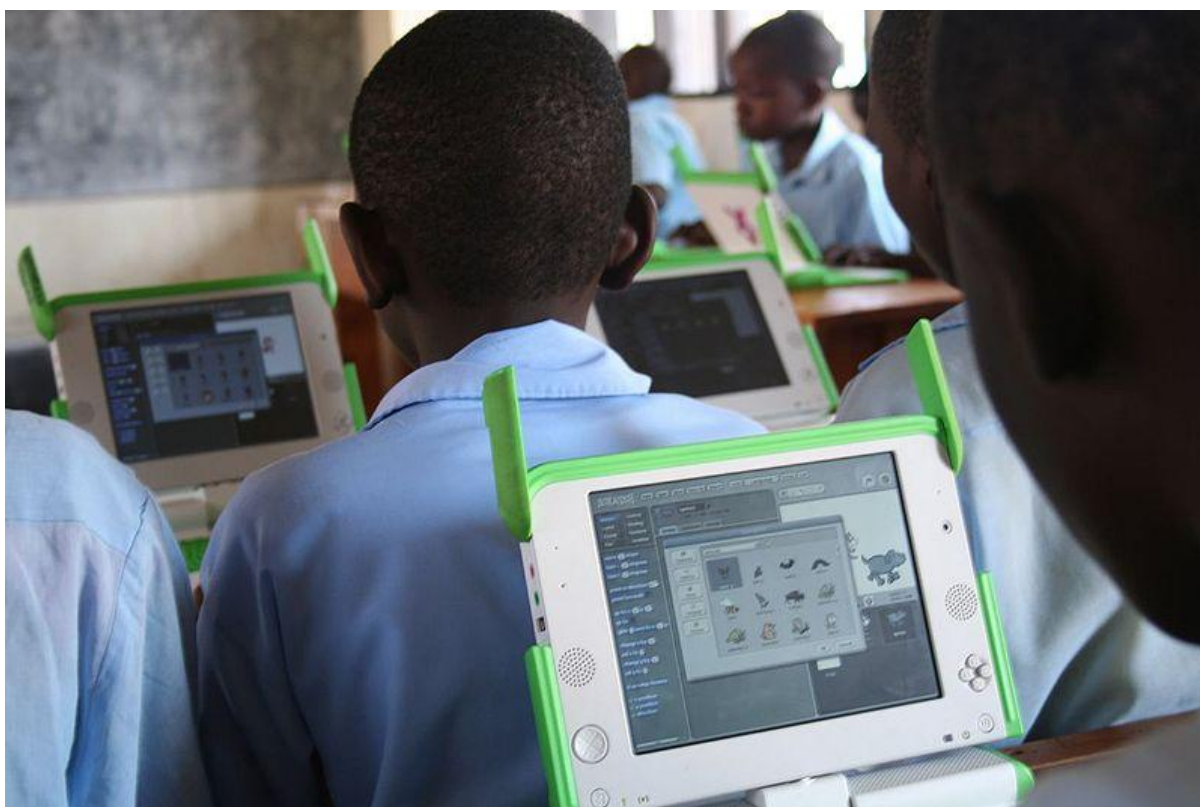


Figure 14 : Children using One Laptop per Child (OLPC) in a classroom, Rwanda

OLPC (One Laptop per Child): (GEN) (OLPC) Is a project to create educational opportunities for the world's poorest children by providing each child with a rugged, low-cost, low-power, connected laptop with content and software designed for collaborative, joyful, self-empowered learning. OLPC has generated a great deal of interest in the Information and Communication Technologies for Development (ICT4D), Information and Communication Technologies in Education and one to one computing fields of research.

Online Auction: (ECOM, INT) The online auction business model is one in which participants bid for products and services over the Internet. The functionality of buying and selling in an auction format is made possible through auction software which regulates the various processes involved. e-Bay is an example of an online auction service provider.

Online Pedagogy: (GEN) This refers to unique approaches to learning and teaching that are particularly suitable for an electronic networked learning environment, such as an intranet or the Internet.

Open Source: (GEN) Any program whose source code is made available for use or modification as users or other developers see fit.

Open System: (HE, SE) A system whose interfaces — for example, application programming interfaces (APIs) or protocols — conform to formal, multilateral, generally available industry standards. "Formal" implies that the standard is selected and maintained using a structured, public process. "Multilateral" implies that, while no technology is ever completely vendor-neutral, the standard is not controlled by a single vendor. "Generally available" implies that the specifications are fully published (preferably with source code of a reference implementation), and that anyone can readily obtain license rights for free or at low cost.

Operating System: (SE, HE) The operating system is a control program that enables users to manage their files, control connected devices (e.g. printer, hard disk) and to start programs. Operating systems that are widely used include Windows, Linux and MacOS.

Orkut: (SN, W20) A social networking and discussion site operated by Google, Orkut is an online community designed to make our social life more active and stimulating. Orkut's social network allows users to maintain existing relationships with pictures and messages, and establish new ones by reaching out to people you've never met before. Before getting to know an Orkut member, you can read their profile and even see how they're connected to you through the friend's network.
www.orkut.com

Outsourcing: (GEN) A contractual relationship with an outside vendor that is usually characterized by the transfer of assets, such as facilities, staff or hardware. It can include facilities management (for data centres or networks), application development and maintenance functions, end-user computing or business process services.

P2P (Peer to Peer): (GEN) Refers to networks that facilitate direct connections among individual nodes rather than through a centralized server. However, many famous P2P networks, such as "Napster"³, actually relied on a central server to connect users. Other networks (such as "Gnutella") offer true peer-to-peer, decentralized connections.

³ A pioneering peer-to-peer file sharing internet service that emphasized sharing audio files that were typically digitally encoded music as MP3 format files

Packet Sniffer: (INT, IS) A program and/or device that monitors data traveling over a network. Packet sniffers can be used both for legitimate network management functions and for stealing information off a network. Unauthorized sniffers can be extremely dangerous to a network's security because they are virtually impossible to detect and can be inserted almost anywhere. This makes them a favorite weapon in the hacker's arsenal.

Patch: (INT, SE) A file that can be downloaded from the Internet and used to eliminate errors in an installed program. Patches are often used to eliminate security weaknesses that are detected after the completion of a program version.

Payment Service Provider: (ECOM) With credit card payments, a payment service provider technologically connects the public agency with the acquirer and processes the individual transactions.



Figure 15 : Private Branch Exchanges have become smaller during the last few years

PBX (Private Branch Exchange): (TEL, HE) A telephone switch (also known as a PABX, or private automatic branch exchange) located on a customer's premises that primarily establishes voice-grade circuits — over tie lines to a telephone company central office (CO) — between individual users and the public switched telephone network. The PBX also provides switching within the customer

premises local area, and usually offers numerous enhanced features, including least-cost routing and call detail recording.

PDA (Personal Digital Assistant): (GEN) A handheld device that runs simple, or “pocket” versions of most office software including word-processing, spreadsheet management. Email and web browsing are enabled through wireless or GPRS connectivity. It often includes a camera and may have a pull-out mini-keyboard as well as an onscreen keyboard.

PDF (Portable Document Format): (GEN) A format that makes it possible—with the help of Adobe Acrobat—to view documents that employ different fonts, various types of graphics, and complex layouts.

Peering: (GEN) The exchange of routing announcements between two Internet Service Providers for the purpose of ensuring that traffic from the first can reach customers of the second, and vice-versa. Peering takes place predominantly at IXPs⁴ and usually is offered either without charge or subject to mutually agreed commercial arrangements.

Penetration: (GEN) A measurement of access to telecommunications, normally calculated by dividing the number of subscribers to a particular service by the population and multiplying by 100. Also referred to as tele-density (for fixed-line networks) or mobile density (for cellular), or total tele-density (fixed and mobile combined).

Personal Health Information Technology (PHIT): (HI) Enables the documentation of an individual's complete, lifelong health and medical history into a private, secure and standardized format that he or she owns and controls, but yet is accessible to legitimate providers day or night from any location.

Pervasive computing: (GEN) A concept that describes a situation in which computing capability is embedded into numerous different devices around the home or office (e.g. fridges, washing machines, cars, etc.). Also referred to as ubiquitous computing. Pervasive communications implies that the microchips in these devices are also able to communicate, for instance their location and status.

Phishing: (IS) A type of computer fraud that tries to trick users into revealing their passwords and other confidential information. Also defined as the fraudulent practice of disguising spam as legitimate e-mail in an attempt to coax recipients into revealing private financial data.

Photobucket: (SN, W20) Photobucket is an image hosting, video hosting, slideshow creation and photo sharing website. Photobucket is used for personal photographic albums, remote storage of avatars displayed on Internet forums, and storage of videos. Photobucket's image hosting is used for blogs and message boards.

⁴ An Internet exchange point is a physical infrastructure through which Internet service providers exchange Internet traffic between their networks

Photosharing: (SN, W20) Uploading images to a website like Flickr. One can add tags and offer people the opportunity to comment or even re-use photos if an appropriate copyright license is added.

PIN (Personal Identification Number): (ECOM, IS) A secret number, known only by the user which allows access to, for example, a bank cash machine or security system.

PKI (Public Key Infrastructure): (IS) The comprehensive system that manages keys and certificates for an organization, allowing encryption features to be used with a wide variety of applications. In order to be effective, a PKI must be usable, automatic and transparent; users should be able to use encryption and digital signatures in the absence of extensive knowledge.

Platform: (SE, HE) A term used to define the type of microprocessor and operating system on which a computer is based.

Platform-Independent: (HE, SE) A term describing software that can run on a variety of hardware platforms or software architectures. Platform-independent software can be used in many different environments, requiring less planning and translation across an enterprise. For example, the Java programming language was designed to run on multiple types of hardware and multiple operating systems.

PLC (Power Line Communications): (HE, GEN) A communication network that uses existing power lines to send and receive data by using electrical signals as the carrier. Power flows on the line at 50-60 Hz while data is sent in the 1 MHz range.

Plug-in: (GEN) Plug-ins are extra modules of the web browser which are necessary to integrate and use special multimedia capabilities. Also defined as the ability to plug in a peripheral and have it work without difficulty.

Podcast: (HE, GEN) Video or audio podcast files designed to be syndicated through feeds via the Internet and played back on mobile devices. New content is delivered automatically when it is available. Posting audio files online so that they can be downloaded to a portable audio player such as an MP3 player too is called podcasting.

Point Of Sale: (ECOM) The place where buying and selling transactions are carried out, (i.e. the cash register in a department store).

Portable keyboard: (GEN) A keyboard that is possible to put in a coat pocket, by folding it or by other means to make it smaller.

Print Preview: (GEN) A software feature that reduces the pages of a document so that a full page (or two facing pages) can be seen on the screen before being printed. This feature permits the user to spot and correct problems in format and page breaks.

Programming Language: (SE) The rules, conventions, and specific commands used to write a computer program. Most programs must be converted into machine language or binary code so that the instructions can be performed on a specific computer platform.

Protocol: (HE) Agreed-upon method of communication used within networks. A specification that describes rules and procedures that computer products should follow to perform activities on a network.

Proxy: (HE) A proxy is a computer in a network which temporarily stores data downloaded from the Internet. Proxies are used for performance reasons or in order to improve IT security.

Public Network: (TEL, GEN) Network established and operated by a telecommunications provider or recognized private company, for specific purpose of providing data transmission services for the public. Data must be encrypted during transmission over public networks as hackers easily and commonly intercept, modify, and/or divert data while in transit. Examples of public networks in scope of PCI DSS include the Internet, GPRS, and GSM.

Push Technology: (GEN) A process that allows a user to obtain automatic delivery of specified information from the Internet to the user's computer—for example, stock market quotes, weather forecasts, and sports scores. Software that automates the delivery of information to users too relates to Push Technology. In contrast, the Web is a "pull" environment that requires a user to seek information. In a "push" environment, information is sent to a person proactively, through a Web browser, email, or even voice mail or a pager. In business, push technology can be used for the conveyance of time-sensitive information, like changes in commodity pricing or the introduction of

promotional programs to a sales force. Enterprises can employ push technology to communicate externally with their clients or internally with their employees over a network.

QoS (Quality of Service): (HE, TEL) A measure of network performance that reflects the quality and reliability of a connection. QoS can indicate a data traffic policy that guarantees certain amounts of bandwidth at any given time, or can involve traffic shaping that assigns varying bandwidth to different applications.

Quadruple play: (TEL) is a marketing term combining the triple play service of broadband Internet access, television and telephone with wireless service provisions.

Remixing: (SN, W20) The use of Social Media to take different items of content, identified by tags and published through feeds, and combine them in different ways. One can do this with other people's content if they add an appropriate copyright license.

Remote Access: (HE, GEN) The ability to connect to a network from a distant location. Generally, this requires a computer, a modem and remote-access software to allow the computer to connect to the network over a public communications network (such as a phone or cable network).

Renren (Xiaonei): (SN, W20) The Renren Network (Chinese: 人人网; literally "everyone network") is a Chinese social networking site with an interface similar to that of Facebook. According to Xiaonei (the old name of Renren Network), as of July 2008, Xiaonei is ""China's largest online community website among universities"" with more than 22 million active users. Thus, Xiaonei is widely considered to be the most powerful student social network service in Mainland China, especially among university students. www.renren.com



RFID (Radio-frequency Identification): (HE, TEL) Radio-frequency identification (RFID) is a technology that uses communication via electromagnetic waves to exchange data between a terminal and an electronic tag attached to an object, for the purpose of identification and tracking. Some tags can be read from several

Figure 16 : An RFID tag used for electronic toll collection

meters away and beyond the line of sight of the reader. The application of bulk reading enables an almost parallel reading of tags. Radio-frequency identification involves interrogators (also known as readers), and tags (also known as labels). (Please see the annex for a detailed description)

RIR (Regional Internet Registry): (INT, GEN) This is an organization overseeing the allocation and registration of Internet number resources within a particular region of the world. Resources include IP addresses (both IPv4 and IPv6⁵) and autonomous system numbers (for use in BGP routing).

Risk Analysis: (IS, ITM) Process that systematically identifies valuable system resources and threats; quantifies loss exposures (based on estimated frequencies and costs of occurrence; and (optionally) recommends how to allocate resources to countermeasures so as to minimize total exposure.



Figure 17 : A simple router, which is not bigger than a modem



Figure 18 : A complex router (sometimes as high as a human being)

Router: (HE, TEL, INT) Hardware or software that connects two or more networks. Functions as sorter and interpreter by looking at addresses and passing bits of information to proper destinations. Software routers are sometimes referred to as gateways. (Please see the annex for a detailed description)

⁵ IPv4 is the fourth revision in the development of the Internet Protocol (IP) and it is the first version of the protocol to be widely deployed. Together with IPv6, it is at the core of standards-based internetworking methods of the Internet. IPv4 is still by far the most widely deployed Internet Layer protocol. IPv6 deployment is still in its infancy.

RSS (Really Simple Syndication): (FB, SN, W20, INT) A family of Web feed formats used to publish frequently updated works—such as blog entries, news headlines, audio, and video—in a standardized format.

RTF (Rich Text Format): (GEN) A file format that encodes documents so their messages include boldface, italics and other limited text stylings across platforms and applications. Differences exist between implementations by Lotus and Microsoft.

Screen Sharing: (GEN) A feature of data-conferencing and other real-time collaboration technologies that enables multiple users to view the same document or computer screen simultaneously. Unlike application sharing, screen sharing allows only one user, rather than multiple users, to control the screen or document.

SEA-ME-WE-3 (South-East Asia - Middle East - Western Europe 3): (TEL, INT) Is an optical submarine telecommunications cable linking those regions and is the longest in the world, completed in late 2000. It is operated by India's Tata Communications and 92 other investors from the telecom industry. It is 39,000 kilometers (24,000 mi) in length and uses Wavelength Division Multiplexing (WDM) technology with Synchronous Digital Hierarchy (SDH) transmission to increase capacity and enhance the quality of the signal, especially over long distances (this cable stretches from North Germany to Australia and Japan). According to the cable system network administrator's website, the system capacity has been upgraded several times. The cable system itself has two fiber pairs, each carrying (as of May 2007) 48 wavelengths of 10 Gbps.

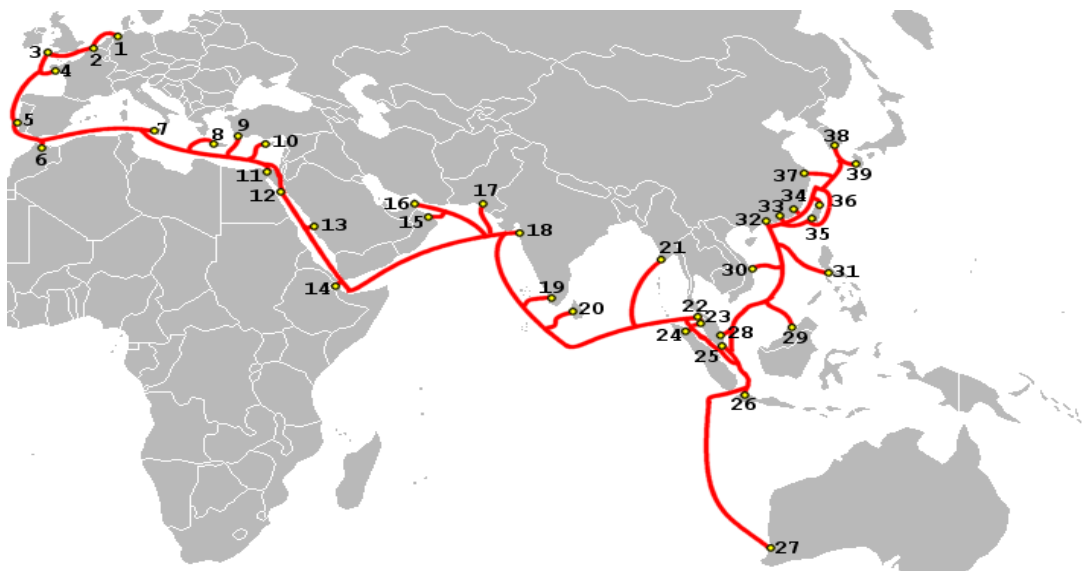


Figure 19: SEA-ME-WE-3 route and landing points

SEA-ME-WE-4 (South East Asia - Middle East - Western Europe 4): (TEL, INT) Is an optical fibre submarine communications cable system that carries telecommunications between Singapore, Malaysia, Thailand, Bangladesh, India, Sri Lanka, Pakistan, United Arab Emirates, Saudi Arabia, Sudan, Egypt, Italy, Tunisia, Algeria and France. It is intended to be a complement to, rather than a replacement for, the SEA-WE-ME 3 cable. The cable is approximately 18,800 kilometers long, and provides the primary Internet backbone between South East Asia, the Indian subcontinent, the Middle East and Europe.

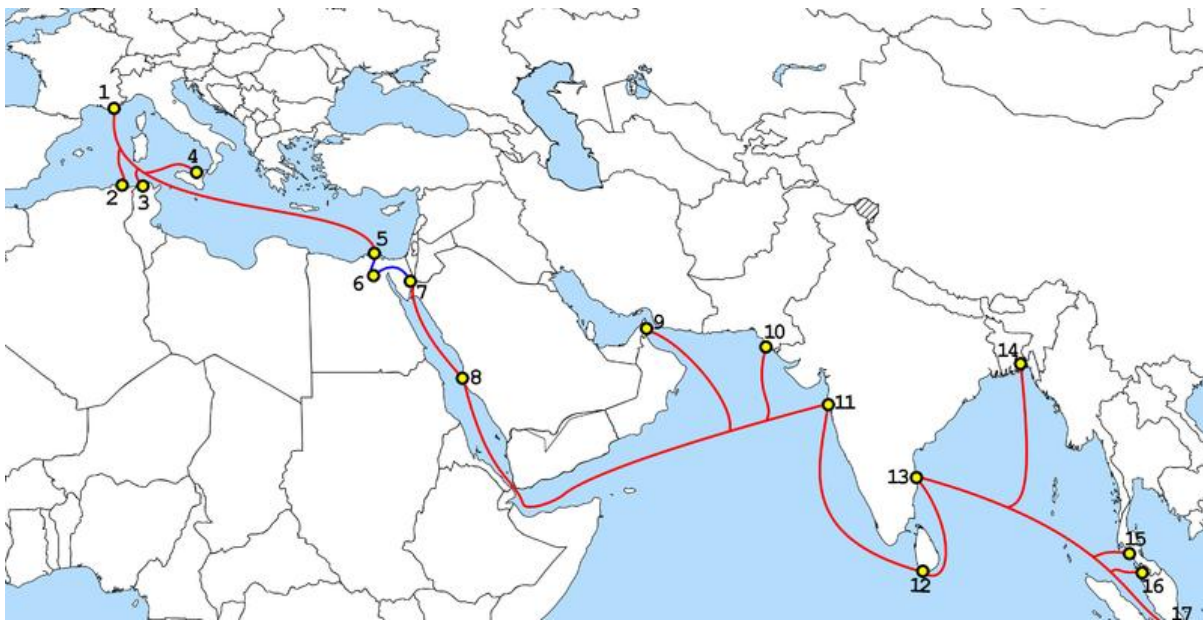


Figure 20: SEA-ME-WE-4 route and landing points

Search Engine Optimization (SEO): (INT) The process of selecting targeted keywords that reflect the content of a Web site, placing them within the meta tag, allowing the search engine to better index the page and provide site ranking among results, and then testing the results to ensure the site is well placed based on selected keywords.

Search Engine: (INT) A website designed specifically to allow users to search the web by entering words, which the engine then uses to locate matching sites.

Security Evaluation: (IS, ITM) An evaluation done to assess the degree of trust that can be placed in systems for the secure handling of sensitive content. One type, a product evaluation, is an evaluation performed on the hardware and software features and assurances of a computer product

from a perspective that excludes the application environment. The other type, a system evaluation, is done for the purpose of assessing a system's security safeguards with respect to a specific operational mission and is a major step in the certification and accreditation process.

Security Policy: (IS) Set of laws, rules, and practices that regulate how an organization manages, protects, and distributes sensitive information.

Server: (HE, SE, INT) Computer that provides a service to other computers, such as processing communications, file storage, or accessing a printing facility. Servers include, but are not limited to web, database, authentication, DNS, mail, proxy, and NTP.

Service Level Agreement (SLA): (GEN) An SLA provides a way of quantifying service definitions by specifying what the end user wants and what the provider is committed to provide. The definitions vary at business, application or network level.

Shareware: (GEN) Software that usually may be downloaded and used initially without charge; the author may subsequently ask for some payment.

Simulation: (HE) The use of a mathematical or computer representation of a physical system for the purpose of studying the effects of various condition scenarios, or forecasting outcomes. For example, historical information may be used to simulate future alternatives for supply chain operations design.

Skype: (GEN) Skype is a software application that allows users to make voice calls over the Internet. Calls to other users within the Skype service are free, while calls to both traditional landline telephones and mobile phones can be made for a fee using a debit-based user account system. Skype has also become popular for its additional features which include instant messaging, file transfer, and video conferencing. Unlike other VoIP services, Skype does not run servers, but makes use of background processing on computers running Skype software. Many network administrators have banned Skype on corporate, government and education networks, citing reasons such as inappropriate usage of resources, excessive bandwidth usage and security concerns. Skype acknowledges that "there is a risk of bandwidth saturation" when using Skype.

Smart Card: (IS, ECOM) A smart card is a small device the size of a credit card with built-in electronic memory of personal data, such as identification and financial information. It can store everything from digital cash, to be spent and used like a travelers check, to health records. To transfer and receive data, a smart card must be



Figure 21 : A smart card, combining credit card and debit card properties. The contact pads on the card enable electronic access to the chip.

inserted into a smart card reader. Smart cards are more secure than a magnetic strip card since they can be programmed to self-destruct if the wrong password is entered too many times.

Smart Growth: (CC, GEN) Smart growth is an urban planning and transportation theory that concentrates growth in compact walkable urban centres to avoid sprawl and advocates compact, transit-oriented, walkable, bicycle-friendly land use, including neighborhood schools, complete streets, and mixed-use development with a range of housing choices.

Smart Phone: (GEN) A mobile phone with some advanced features, such as a web browser. A Blackberry and I-Phone are examples of some popular Smart Phones.

Smart Technologies: (CC, GEN) A subsection of 'Clean Tech' that are ICT enabled to better understand, monitor, use, manage and control energy and material use and consumption and green house gas emissions. Some of these are smart design technologies such as Building Information Modelling (BIM); variable rate motors with smart control systems; smart metering systems; dematerialization technologies such as e-commerce, virtual market places, virtual goods and services; smart transportation and logistics technologies including electric vehicles (EVs); workflow control systems for reducing waste and energy consumption in manufacturing and other industrial applications; smart grid and related technologies; smart buildings and building management systems (BMS) and smart water management technologies.

SMS (Short Messaging Service): (TEL, HE) A service available on most digital mobile phones that permits the sending of short messages (also known as text messages, messages or, more colloquially, "SMSes", texts or even txts) between mobile phones, other handheld devices and even

landline telephones. Other uses of text messaging can be for ordering ringtones, wallpapers and entering competitions.

Social Computing: (GEN, SN) Supporting any sort of social behavior in or through the use of computers and computer software. It is based on creating or recreating social conventions and social contexts otherwise only possible in face-to-face interaction. Blogs, email, instant messaging, social network services, wikis, and social bookmarking are common examples of social software.

Social Media: (SN, W20) The tools and platforms people use to publish, converse and share content online. The tools include blogs, wikis, podcasts, and sites to share photos and bookmarks.

Social Networking: (SN) Social networking websites allow users to be part of a virtual community. The two most popular sites are currently Facebook and MySpace. Popular Social Networking sites include RenRen, weibo and Cyworld. These websites provide users with simple tools to create a custom profile with text and pictures. A typical profile includes basic information about the user, at least one photo, and possibly a blog or other comments published by the user. Also known as an online phenomenon where users can create a profile for themselves, and then socialize with others using a range of social media tools including blogs, video, images, tagging, lists of friends, forums and messaging.

Soft Switch: (HE) A type of network-switching technology. Soft switches are software-based products used to control communications networks.

Spam Mailing: (GEN) To send an e-mail message to a great number of recipients without regard for their need to know. A user who spams sometimes receives a mail-bomb in return as a form of retaliation.

Spam: (IS) Unwanted, nuisance e-mail, some of which may contain computer viruses or worms, fraudulent consumer scams or offensive content.

Spectrum: (HE, GEN) The radio-frequency spectrum of hertzian waves used as a transmission medium for cellular radio, radiopaging, satellite communication, over-the air broadcasting and other services.

Spider: (IS, INT) Traffic generated on your web site by known non-human activity (i.e. a program that searches web sites for content – usually from search engines). Spiders can be filtered from valid traffic views. Spiders are also called Robots.

Spim: (IS) Spam over instant messenger

Spit: (IS) Spam over Internet telephony

Spreadsheet: (GEN) A program that provides a worksheet with rows and columns to be used for calculations and the preparation of reports.

SQL (Structured (English) Query Language): (SE) Computer language used to create, modify, and retrieve data from relational database management systems

Streaming: (HE) Data streaming, commonly seen in the forms of audio and video streaming, is when a multimedia file can be played back without being completely downloaded first. Most files, like shareware and software updates that you download off the Internet, are not streaming data.

Surge Protector: (HE) A device that protects computer hardware from being damaged by sudden increases in voltage.



Figure 22: A multiple plug based equipped with a surge protector

Sustainable Development Networking Program (SDNP): (GEN) A catalytic initiative to kick-start networking in developing countries and help people share information and expertise relevant to sustainable development to better their lives. Launched in 12 pilot countries in 1992 as one outgrowth of the Earth Summit, the SDNP offered assistance in establishing connectivity to national

networks and the Internet, content aggregation and user training in 39 developing nations and 36 small island developing states. The SDNP is no longer operational.

Syncing: (HE, SE) A method used to synchronize the data held on PDAs and mobile phones or Smart Phones with the data held on a computer. ActiveSync is the application used to sync Windows Mobile and Pocket PC mobile devices. Allows the user to keep things like calendar and contacts lists the same on both a desktop computer and a mobile device.

System Integration: (HE) Combining two or more computer systems and/or software, to make sure that they can work together.

Tag: (SN, ITM) A tag is a non-hierarchical keyword or term assigned to a piece of information (such as an Internet bookmark, digital image, or computer file). This kind of metadata helps describe an item and allows it to be found again by browsing or searching. Tags are generally chosen informally and personally by the item's creator or by its viewer, depending on the system.

Tagged: (SN, W20) A social networking site that allows users to customize their profile page, in which users can play games, chat, upload photos and videos, send and accept messages from other users, post a biography about themselves and their interests, send virtual "winks," tags, and gifts to each other, and post status updates to inform their friends of their whereabouts and actions. The site allows you to buy via Paypal, cash, Amazon payments or by telephone. There are visual chat rooms in which users engage in real time online chat in different "rooms" according to their age and mood. www.tagged.com

Tampering: (IS, ITM) An unauthorized modification that alters the proper functioning of equipment or a system in a manner that degrades the security or functionality it provides.

TAN: (ECOM, IS) Transaction Number. Secret number that authorises a single transaction. The number then loses its validity. It is used, in particular, for home banking in combination with a PIN.

Technology Neutral Legislation or Regulation: (TEL) Laws and/or government issuances that prevent favoring one kind of technology over another. This is not only to prevent giving a technology an advantage in the marketplace but also to prevent obsolescence as a technology specific act or order that is likely to become useless once there is technological improvement.

Telecommuter: (GEN) An employee who works away from the office (usually at home) and uses a computer (1) to access needed information on the organization's intranet and the Internet and (2) to communicate with other employees, suppliers, and customers or clients.

Teleconferencing: (TEL, HE) Interactive electronic communication between two or more people at two or more sites which makes use of voice, video and/or data transmission.

Tele-density: (GEN) A term commonly used to describe the number of telephone lines per some unit of the population (often per 100 people).

Telematics: (GEN, TEL, W20) is the integrated use of telecommunications and informatics, also known as ICT (Information and Communications Technology). It can also be defined as the technology of sending, receiving and storing information via telecommunication devices in conjunction with effecting control on remote objects. Telematics includes Global Positioning System technology integrated with computers and mobile communications technology in automotive navigation systems too.

Tele-presence: (HE) Enhanced Video, audio and information conferencing with the aim of minimizing the perception limitations of present electronic communication such as video conferencing compared with face-to-face meetings.

T-Government: (GEN, EGOV) Interactive terrestrial digital TV-based e-service delivery via specially designed government TV channels/portal, with both broadcast and on-demand content. In the Republic of Korea, the 'T-Gov' program will make two-way communication between the government and the public possible through television.

Throughput: (TEL, HE) The volume of work or information flowing through a system. The term is particularly meaningful in information storage and retrieval systems, in which throughput is measured in units such as accesses per hour.

Time Stamp: (IS) Electronic certification by a (trustworthy) body that specific electronic data was present at a given time. However, it is not generally necessary for this body to be aware of the content of the data.

Trackback: (SN, W20) A blog function that allows other bloggers to leave a calling card automatically, instead of commenting. A blogger may write on blog “A” about an item on blogger “B”’s site, and through the trackback facility leave a link on “B”’s site back to “A”. The collection of comments and trackbacks on a site facilitates conversations.

Transfer Payment: (ECOM) A transfer payment is the transfer of an amount of money in the form of deposit money from the account of the party liable to pay to the account of the payee. It is triggered by a transfer instruction on the side of the party liable to pay.

Triple play: (TEL) A marketing term for the provisioning of three services over a single broadband connection. Usually it consists of two bandwidth-intensive services, high-speed Internet access and television, and a less bandwidth-demanding (but more latency-sensitive) service like telephone.

Trojan (Trojan Horse): (IS) A program comes with a hidden surprise intended by the programmer but unexpected by the user. Trojan horses are often designed to cause damage or do something malicious to a system, but are disguised as something useful. Unlike viruses, Trojan horses don't make copies of themselves. Like viruses, they can cause significant damage to a computer.

TTS (Text-to-Speech): (HE) Converts normal language text into speech. It is composed of two parts: a front-end and a back-end. The front-end has two major tasks. First, it converts raw text containing symbols like numbers and abbreviations into the equivalent of written-out words. The front-end then assigns phonetic transcriptions to each word, and divides and marks the text into prosodic units, like phrases, clauses, and sentences.

Tudou: (SN, W20) Tudou is one of the largest video sharing websites in People's Republic of China, where users can upload, view and share video clips. Tudou states they are one of the world's largest bandwidth users, moving more than 1 Petabyte per day to 7 million users. Tudou is becoming popular with users in the Western World because it allows the viewer to watch entire episodes of television shows and movies, rather than being restricted to short 10 minute clips as with YouTube. www.tudou.com

Twitter: (W20, SN) Twitter is a social networking and microblogging service, owned and operated by Twitter Inc., which offers a social networking and microblogging service, enabling its users to send and read other users' messages called tweets. (www.twitter.com)

Ubiquitous Computing: (GEN) A term that reflects the view that future communication networks will allow seamless access to data, regardless of where the user is. See Pervasive computing. Computing technology that is invisible to the user because of wireless connectivity and transparent user interface too is called ubiquitous computing.

U-City: (GEN) An ubiquitous city is a city or region with ubiquitous information technology. All information systems are linked, and virtually everything is linked to an information system through technologies such as wireless networking and RFID tags. The concept has received most attention in South Korea, which is planning to build some 15 ubiquitous cities.



Figure 23: A model of a future u-city from South Korea

U-Government: (EG) The 'U' stands for 'ubiquitous', which is defined as communication between devices, things, humans and computers anytime and anywhere. All devices or things will be embedded in computing and then networked through wired or wireless connections. Under the u-

Government program, citizens will be able to access government services anytime and anywhere through multi-channel devices (based on mobile technologies).

U-Health: (HI) Is Ubiquitous Healthcare systems that monitor patients as they maintain their normal everyday activities, in order to warn the patients or healthcare workers of problems as well as collecting data for trend analysis and medical research.

Universal Access Fund (UAF): (GEN) UAFs receive financing from various sources and provide targeted subsidies to encourage the provision of telecommunications services by private operators in otherwise uneconomic regions.

Universal Access: (GEN) Refers to reasonable telecommunication access for all. Includes universal service for those that can afford individual telephone service and widespread provision of public telephones within a reasonable distance of others.

Universal Accessibility: (GEN) Available to anyone independent of physical handicaps.

Upload: (INT) An upload entails passing data from one's own computer to a computer on the network.

UPS (Uninterruptible Power Supply): (HE) A battery-powered backup system that provides enough electricity to a computer during a power outage (or, in most cases, a brownout or power surge) so that the user can save files before shutting down the computer.

URL (Uniform Resource Locator): (GEN) An Internet World Wide Web address. (e.g. www.unapcict.org).

Usability: (GEN) Ease and efficiency in the use of a mobile device. In a learning situation, the device should not get in the way of the learning task. The design of the user interface is very important but contextual factors also have an impact on user experience. Usability also refers to the fitness for purpose and ease-of-use, for example, of a website or program. The critical parameter is the extent to which visitors can use the website efficiently and to their satisfaction.

USB (Universal Serial Bus): (HE) A common standard for connecting multiple peripherals to a computer as needed.

USO (Universal Service Obligations): (GEN) Requirements that governments place on operators to offer service in all areas, regardless of economic feasibility.

Value-Added Network Services (VANS): (TEL, GEN) Telecommunication services provided over public or private networks which, in some way, add value to the basic carriage, usually through the application of computerized intelligence. Examples of VANS include reservation systems, bulletin boards, and information services. Also known as enhanced services.

Vaporware: (SE, W20) Software that is being widely advertised, even though it is still in the developmental stage and may have serious problems that may doom its eventual release. The premature marketing of software is designed to deter prospective customers from buying competitive products already available for sale.

Virtual Enterprise: (GEN) An enterprise integrating several ideals: outsourced noncore competencies; a focus on core business strengths; little or no physical presence or infrastructure; a network of business alliances; the exploitation of intellectual capital; and a heavy reliance on telecommunications. Virtual enterprises have outsourced the physical processes and administrative attributes of traditional business, and have expanded and combined intellectual activities (e.g., problem solving) with standard business processes such as marketing.

Virtual Keyboard: (HE) A keyboard that is displayed on the screen by the software. The operation of such keyboards is often possible with fewer keys and a scan mode. Virtual keyboards are often used where the users cannot use a normal keyboard or only use it with difficulty.

Virus: (IS) A computer virus is a computer program that can copy itself and infect a computer. The term "virus" is also commonly but erroneously used to refer to other types of malware, including but not limited to adware and spyware programs that do not have the reproductive ability. A true virus can spread from one computer to another (in some form of executable code) when its host is taken to the target computer; for instance because a user sent it over a network or the Internet, or carried it on a removable medium such as a CD, DVD, or USB drive. Viruses can increase their chances of spreading to other computers by infecting files on a network file system or a file system that is accessed by another computer. (Please see the annex for a detailed description)

VoD (Video on Demand): (HE) (ITU-T J.127 (04), 3.3). A program transmission method whereby the program starts playing after a certain amount of data has been buffered while receiving subsequent

data in the background, where the program is completely created by the content provider. Using this system, users are able to select and watch video and multimedia content over a network as part of an interactive television system. VoD systems either “stream” content, allowing viewing in real time, or “download” it, in which the program is brought in its entirety to a set-top box before viewing starts.

VOIP (Voice Over Internet Protocol): (TEL, HE, GEN) Is any of a family of methodologies, communication protocols, and transmission technologies for delivery of voice communications and multimedia sessions over Internet Protocol (IP) networks, such as the Internet. Other terms frequently encountered and often used synonymously with VoIP are IP telephony, Internet telephony, Voice over Broadband (VoBB), broadband telephony, and broadband phone. Internet telephony refers to communications services — voice, fax, SMS, and/or voice-messaging applications — that are transported via the Internet, rather than the public switched telephone network (PSTN).

VPN (Virtual Private Network): (TEL, HE) A system that delivers private communications services on a shared, public-network infrastructure, and provides customized operating characteristics uniformly and universally across an enterprise. The term "VPN "is generically used to refer to voice VPNs. To

avoid confusion, those used for data, rather than voice, communications are more properly referred to as "data VPNs" or "IP VPNs." VPN service providers define a VPN as a wide-area network of permanent virtual circuits, generally using asynchronous transfer mode or frame relay to transport IP. VPN technology providers often

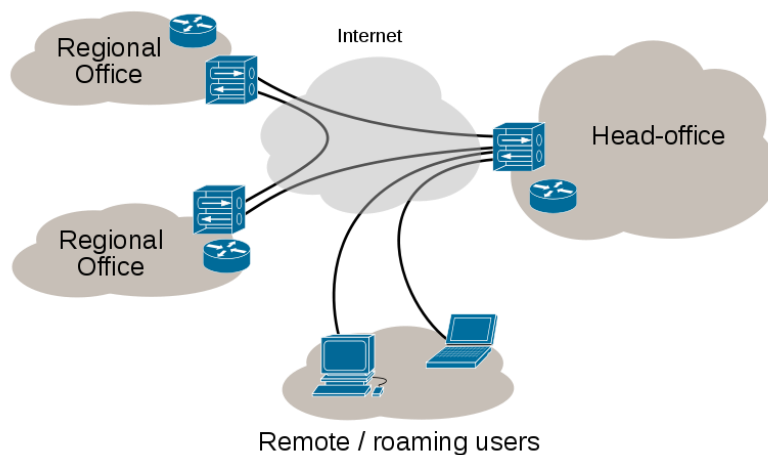


Figure 24 : VPN Connectivity overview

define "virtual private networking" as the use of encryption software or hardware to bring privacy to communications over a public or insecure data network.



Figure 25 : A VSAT terminal

VSAT (Very Small Aperture Terminal): (TEL HE, GEN) A 2-way satellite ground station with a dish antenna that is smaller than 3 meters, as compared to around 10 meters for other types of satellite dishes. VSATs are most commonly used to transmit narrowband data (point of sale transactions such as credit card, polling or RFID data; or SCADA), or broadband data (for the provision of Satellite Internet access to remote locations, VoIP or video). VSATs are also used for transportable, on-the-move (utilizing phased array antennas) or mobile maritime communications.

Vulnerability Assessment: (IS, ITM) Systematic examination of an AIS or product to determine the adequacy of security measures, identify security

deficiencies, provide data from which to predict the effectiveness of proposed security measures, and confirm the adequacy of such measures after implementation.

W3C (World Wide Web Consortium): (INT) A vendor-independent consortium founded to promote the further development of the World Wide Web, which discusses and defines general standards for the web. <http://www.w3.org>

WAI (Web Accessibility Initiative): (INT) The initiative belongs to the W3C that has been defining standards for the WWW since 1994. The WAI elaborates guidelines for the accessibility to web sites.

WAP (Wireless Application Protocol): (HE, INT) Is used to access the Internet from mobile telephones.

Web 2.0: (W20) Associated with web applications that facilitate interactive systemic biases, interoperability, user-centred design and administrating the World Wide Web. A Web 2.0 site gives its users no choice but to interact or collaborate with each other in a social media dialogue as (consumers) of user-generated content in a virtual community, in contrast to websites where users (prosumers) are limited to the active viewing of content that was created and controlled by them. Examples of Web 2.0 include social-networking sites, blogs, wikis, video-sharing sites, hosted services, web applications and folksonomies. Although the term suggests a new version of the World

Wide Web, it does not refer to an update to any technical specifications, but rather to cumulative changes in the ways software developers and end-users use the Web. Whether Web 2.0 is qualitatively different from prior web technologies has been challenged by World Wide Web inventor Tim Berners-Lee, who called the term a "piece of jargon", precisely because he intended the Web in his vision as "a collaborative medium, a place where we [could] all meet and read and write". He called it the 'Read/Write Web'.



Figure 26: A tag cloud presenting Web 2.0 themes

Web Analytics: (INT) The use of a range of quantitative analyses to understand Web site performance and visitor experience. These analyses include usage levels and patterns on an individual and aggregate level. Data sources may include clickstream data from the Web server log, Web transaction data, submitted data from input fields on the Web site and data in the Internet customer repository. The results may be used to improve site performance (from a technical and content perspective), enhance visitor experience (and thus loyalty), contribute to overall understanding of customers and channels, and identify opportunities and risks.

Web Hosting: (INT) A service in which a vendor offers the housing of Web sites via vendor-owned shared or dedicated servers and applications at the provider-controlled facilities. The vendor is

responsible for all day-to-day operations and maintenance of the Web site. The customer is responsible for the site's content.

Webcam: (INT, HE) A video camera that sends live images over the Internet to a Web site.

Webcaster: (INT) An application that can be custom-tailored to satisfy an individual user's need for constantly updated information in specific areas. A Webcaster, when appropriately programmed, will automatically deliver the needed information to the user's computer.

Weblog: (GEN) An online journal or diary organized by date, with most recent posts at the top, and made publicly available via the Web.

WiBro: (TEL, INT) A wireless networking technology (IEE 802.16x) that will enable portable Internet access. The Republic of Korea commercially launched its WiBro services in 2006.

WiFi (Wireless Fidelity): (HE, GEN) A set of standards for facilitating wireless networks in a local area, enabling WiFi devices to connect to the Internet when in range of an access point. It is also the trade name for a popular wireless technology used in home networks, mobile phones, video games and more and a mark of interoperability among devices adhering to the 802.11b specification for Wireless LANs from the Institute of Electrical and Electronics Engineers (IEEE). The term Wi-Fi is sometimes mistakenly used as a generic term for wireless LAN.

Wiki: (GEN, INT) A web page - or set of pages - that can be edited collaboratively. The best known example is Wikipedia, an encyclopedia created by thousands of contributors across the world. Once people have appropriate permissions - set by the wiki owner - they can create pages and/or add to and alter existing pages. Wikis are a good way for people to write a document together, instead of emailing files to and fro. Wikis are typically powered by wiki software and are often used to create collaborative wiki websites, to power community websites, for personal note taking, in corporate intranets, and in knowledge management systems. Wikis may exist to serve a specific purpose, and in such cases, users use their editorial rights to remove material that is considered "off topic." Such is the case of the collaborative encyclopedia Wikipedia. In contrast, open purpose wikis accept content without firm rules as to how the content should be organized.

Wikileaks: (Gen, INT) An international news media non-profit organization that publishes submissions of otherwise unavailable documents from anonymous news sources and news leaks.

Wikipedia: (GEN, INT) A free, web-based, collaborative, multilingual encyclopedia project supported by the non-profit Wikimedia Foundation. Its 17 million articles (over 3.4 million in English) have been written collaboratively by volunteers around the world, and almost all of its articles can be edited by anyone with access to the site. When Time magazine recognized *You* as its Person of the Year for 2006, acknowledging the accelerating success of online collaboration and interaction by millions of users around the world, it cited Wikipedia as one of several examples of Web 2.0 services, along with YouTube, MySpace, and Facebook. Some noted the importance of Wikipedia not only as an encyclopedic reference but also as a frequently updated news resource because of how quickly articles about recent events appear. (Please see the annex for a detailed description)

WiMAX: (HE, TEL) Fixed wireless standard IEEE 802.16 that allows for long-range wireless communication at 70 Mbps over 50 kilometers. It can be used as a backbone Internet connection to rural areas.

Wireless Sensor Network (WSN): (GEN, HE) consists of spatially distributed autonomous sensors to monitor physical or environmental conditions, such as temperature, sound, vibration, pressure, motion or pollutants and to cooperatively pass their data through the network to a main location. The more modern networks are bi-directional, enabling also to control the activity of the sensors. The development of wireless sensor networks was motivated by military applications such as battlefield surveillance. Today such networks are used in many industrial and consumer applications, such as industrial process monitoring and control, machine health monitoring, environment and habitat monitoring, healthcare applications, home automation, and traffic control.

WML (Wireless Markup Language): (SE) Is a language based on XML, and is a content format for devices that implement the Wireless Application Protocol (WAP) specification.

Wordpress: (W20) Is the largest self-hosted blogging tool and a state-of-the-art semantic personal publishing platform. It is also the most popular blog software in use today.

WMS (Workflow Management System): (ITM) System used for workflow management. Used for the definition, administration and execution of (standard) workflows. A workflow refers to a description of a business process that can be implemented on the computer.

Worm: (IS) A self-contained program (usually malicious) that can automatically propagate throughout a network. In addition to damage caused by the program on a user's machine, the

programs can slow down network traffic as all infected machines scan simultaneously to find new hosts. Like viruses, worms replicate themselves. However, instead of spreading from file to file they spread from computer to computer, infecting an entire system.

WSIS (World Summit on the Information Society): (GEN) This was a pair of United Nations-sponsored conferences about information, communication and, in broad terms, the information society that took place in 2003 in Geneva and in 2005 in Tunis. One of its chief objectives was to bridge the so-called global digital divide separating rich countries from poor countries by spreading access to the Internet in the developing world. The conferences established 17 May as World Information Society Day.

WYSIWYG (What You See is What You Get): (GEN) Pronounced wiz-zy-wig. An acronym derived from what you see is what you get. A computer design standard that lets the user see on the screen how a page will look when it is printed. The term relates to an HTML editor, word processor, or desktop publishing system that is designed to show one on screen exactly what will be displayed when a document is printed or viewed online.

XHTML (Extensible HyperText Markup Language): (SE) A markup language that has the same depth of expression as HTML, but also conforms to XML syntax.

XML (Extensible Markup Language): (SE) Allows users to define their own elements. Its primary purpose is to facilitate the sharing of structured data across different information systems, particularly via the Internet.

Yahoo Messenger: (SN, W20) Is an instant messaging service that allows users to connect with friends through a variety of features. It is an advertisement-supported instant messaging client and associated protocol provided by Yahoo!. The service is free of charge.

YouTube: (SN, W20) Is a video-sharing website on which users can upload, share, and view videos, and uses Adobe Flash Video technology to display a wide variety of user-generated video content, including movie clips, TV clips, and music videos, as well as amateur content such as video blogging and short original videos.

ANNEX

This section carries the detailed descriptions of a few terms that will be useful for government officers.

ADSL (Asymmetric Digital Subscriber Line): (TEL, HE) Is one form of the Digital Subscriber Line technology, a data communications technology that enables faster data transmission over copper telephone lines than a conventional voice-band modem can provide. It does this by utilizing frequencies that are not used by a voice telephone call. A splitter, or DSL filter, allows a single telephone connection to be used for both ADSL service and voice calls at the same time. ADSL can generally only be distributed over short distances from the central office, typically less than 4 kilometers (2 mi), but has been known to exceed 8 kilometers (5 mi) if the originally laid wire gauge allows for farther distribution. At the telephone exchange the line generally terminates at a Digital Subscriber Line Access Multiplexer (DSLAM) where another frequency splitter separates the voice band signal for the conventional phone network. Data carried by the ADSL are typically routed over the telephone company's data network and eventually reach a conventional Internet Protocol network.

AI (Artificial Intelligence): (HE) Is the intelligence of machines and the branch of computer science that aims to create it. AI textbooks define the field as "the study and design of intelligent agents" where an intelligent agent is a system that perceives its environment and takes actions that maximize its chances of success. John McCarthy, who coined the term in 1956, defines it as "the science and engineering of making intelligent machines." The field was founded on the claim that a central property of human intelligence can be so precisely described that it can be simulated by a machine. This raises philosophical issues about the nature of the mind and the ethics of creating artificial beings, issues which have been addressed by myth, fiction and philosophy since antiquity. Artificial intelligence has been the subject of optimism, but has also suffered setbacks and, today, has become an essential part of the technology industry, providing the heavy lifting for many of the most difficult problems in computer science. AI research is highly technical and specialized, deeply divided into subfields that often fail to communicate with each other. Subfields have grown up around particular institutions, the work of individual researchers, the solution of specific problems, longstanding differences of opinion about how AI should be done and the application of widely differing tools. The central problems of AI include such traits as reasoning, knowledge, planning,

learning, communication, perception and the ability to move and manipulate objects. General intelligence (or "strong AI") is still among the field's long term goals.

Blog: (SN, GEN) A blog (a blend of the term web log) is a type of website or part of a website. Blogs are usually maintained by an individual with regular entries of commentary, descriptions of events, or other material such as graphics or video. Entries are commonly displayed in reverse-chronological order. Blog can also be used as a verb, meaning to maintain or add content to a blog. Most blogs are interactive, allowing visitors to leave comments and even message each other via widgets on the blogs and it is this interactivity that distinguishes them from other static websites. Many blogs provide commentary or news on a particular subject; others function as more personal online diaries. A typical blog combines text, images, and links to other blogs, Web pages, and other media related to its topic. The ability of readers to leave comments in an interactive format is an important part of many blogs. Most blogs are primarily textual, although some focus on art (Art blog), photographs (photoblog), videos (video blogging), music (MP3 blog), and audio (podcasting). Microblogging is another type of blogging, featuring very short posts. As of December 2007, blog search engine Technorati was tracking more than 112 million blogs.

Cloud Computing: (TEL, HE) Cloud computing is Internet-based computing, whereby shared resources, software, and information are provided to computers and other devices on demand, as with the electricity grid. Cloud computing is a natural evolution of the widespread adoption of virtualization, Service-oriented architecture and utility computing. Details are abstracted from consumers, who no longer have need for expertise in, or control over, the technology infrastructure "in the cloud" that supports them. Cloud computing describes a new supplement, consumption, and delivery model for IT services based on the Internet, and it typically involves over-the-Internet provision of dynamically scalable and often virtualized resources. It is a byproduct and consequence of the ease-of-access to remote computing sites provided by the Internet. This frequently takes the form of web-based tools or applications that users can access and use through a web browser as if they were a program installed locally on their own computer. The term "cloud" is used as a metaphor for the Internet, based on the cloud drawing used in the past to represent the telephone network, and later to depict the Internet in computer network diagrams as an abstraction of the underlying infrastructure it represents. Typical cloud computing providers deliver common business applications online that are accessed from another Web service or software like a Web browser, while the software and data are stored on servers. Most cloud computing infrastructures consist of services delivered through common centres and built on servers. Clouds often appear as single

points of access for consumers' computing needs. Commercial offerings are generally expected to meet quality of service (QoS) requirements of customers, and typically include service level agreements (SLAs). The major cloud service providers include Amazon, Salesforce, Microsoft and Google. Some of the larger IT firms that are actively involved in cloud computing are Fujitsu, Dell, Red Hat, Hewlett Packard, IBM, VMware and NetApp.

Firewall: (IS, HE, SE) Hardware, software, or both that protect resources of one network from intruders from other networks. Typically, an enterprise with an intranet that permits workers access to the wider Internet must have a firewall to prevent outsiders from accessing internal private data resources. A firewall is a part of a computer system or network that is designed to block unauthorized access while permitting authorized communications. It is a device or set of devices that is configured to permit or deny network transmissions based upon a set of rules and other criteria. Firewalls can be implemented in either hardware or software, or a combination of both. Firewalls are frequently used to prevent unauthorized Internet users from accessing private networks connected to the Internet, especially intranets. All messages entering or leaving the intranet pass through the firewall, which inspects each message and blocks those that do not meet the specified security criteria. There are several types of firewall techniques: (1) Packet filter: Packet filtering inspects each packet passing through the network and accepts or rejects it based on user-defined rules. Although difficult to configure, it is fairly effective and mostly transparent to its users. It is susceptible to IP spoofing. (2) Application gateway: Applies security mechanisms to specific applications, such as FTP and Telnet servers. This is very effective, but can impose performance degradation. (3) Circuit-level gateway: Applies security mechanisms when a TCP or UDP connection is established. Once the connection has been made, packets can flow between the hosts without further checking. (4) Proxy server: Intercepts all messages entering and leaving the network. The proxy server effectively hides the true network addresses.

RFID (Radio-frequency Identification): (HE, TEL) Radio-frequency identification (RFID) is a technology that uses communication via electromagnetic waves to exchange data between a terminal and an electronic tag attached to an object, for the purpose of identification and tracking. Some tags can be read from several meters away and beyond the line of sight of the reader. The application of bulk reading enables an almost parallel reading of tags. Radio-frequency identification involves interrogators (also known as readers), and tags (also known as labels). Most RFID tags contain at least two parts. One is an integrated circuit for storing and processing information, modulating and demodulating a radio-frequency (RF) signal, and other specialized functions. The

other is an antenna for receiving and transmitting the signal. There are three types of RFID tags: passive RFID tags, which have no power source and require an external electromagnetic field to initiate a signal transmission, active RFID tags, which contain a battery and can transmit signals once an external source ('Interrogator') has been successfully identified, and battery assisted passive (BAP) RFID tags, which require an external source to wake up but have significant higher forward link capability providing greater range. RFID has many applications; for example, it is used in enterprise supply chain management to improve the efficiency of inventory tracking and management.

Router: (HE, TEL, INT) Hardware or software that connects two or more networks. Functions as sorter and interpreter by looking at addresses and passing bits of information to proper destinations. Software routers are sometimes referred to as gateways. When multiple routers are used in a large collection of interconnected networks, the routers exchange information, so that each router can build up a reference table showing the preferred paths between any two systems on the interconnected networks. A router can have many interface connections, for different physical types of network (such as copper cables, fiber optic, or wireless transmission). It may contain firmware for different networking protocol standards. Each network interface device is specialized to convert computer signals from one protocol standard to another. Routers can be used to connect two or more logical subnets, each having a different network address. The subnets addresses in the router do not necessarily map directly to the physical interfaces of the router. The term "layer 3 switching" is often used interchangeably with the term "routing". The term switching is generally used to refer to data forwarding between two network devices with the same network address. This is also called layer 2 switching or LAN switching. Routers come in different shapes and sizes.

Twitter: (W20, SN) Twitter is a social networking and microblogging service, owned and operated by Twitter Inc., which enables its users to send and read other users' messages called "tweets". Tweets are text-based posts of up to 140 characters displayed on the user's profile page. Tweets are publicly visible by default, however senders can restrict message delivery to their friends list. Users may subscribe to other users' tweets—this is known as following and subscribers are known as "followers". All users can send and receive tweets via the Twitter website, compatible external applications (such as for smartphones), or by Short Message Service (SMS) available in certain countries. While the service is free, accessing it through SMS may incur phone service provider fees. The website is owned by a company that is based in San Francisco, California. Since its creation in March 2006 and its launch in July 2006 by Jack Dorsey, Twitter has gained popularity worldwide and currently has more than 175 million users. It is estimated that Twitter has 190 million users,

generating 65 million tweets a day and handling over 800,000 search queries per day. It is sometimes described as the "SMS of the Internet."

Virus: (IS) A computer virus is a computer program that can copy itself and infect a computer. The term "virus" is also commonly but erroneously used to refer to other types of malware, including but not limited to adware and spyware programs that do not have the reproductive ability. A true virus can spread from one computer to another (in some form of executable code) when its host is taken to the target computer; for instance because a user sent it over a network or the Internet, or carried it on a removable medium such as a floppy disk, CD, DVD, or USB drive. Viruses can increase their chances of spreading to other computers by infecting files on a network file system or a file system that is accessed by another computer. As stated above, the term "computer virus" is sometimes used as a catch-all phrase to include all types of malware, even those that do not have the reproductive ability. Malware includes computer viruses, computer worms, Trojan horses, most rootkits, spyware, dishonest adware and other malicious and unwanted software, including true viruses. Viruses are sometimes confused with worms and Trojan horses, which are technically different. A worm can exploit security vulnerabilities to spread itself automatically to other computers through networks, while a Trojan horse is a program that appears harmless but hides malicious functions. Worms and Trojan horses, like viruses, may harm a computer system's data or performance. Some viruses and other malware have symptoms noticeable to the computer user, but many are surreptitious or simply do nothing to call attention to themselves. Some viruses do nothing beyond reproducing themselves.

Wikipedia: (GEN, INT) A free, web-based, collaborative, multilingual encyclopedia project supported by the non-profit Wikimedia Foundation. Its 17 million articles (over 3.4 million in English) have been written collaboratively by volunteers around the world, and almost all of its articles can be edited by anyone with access to the site. Wikipedia was launched in 2001 by Jimmy Wales and Larry Sanger and has become the largest and most popular general reference work on the Internet with an estimated 365 million readers. The name Wikipedia was coined by Larry Sanger and is a portmanteau from wiki (a technology for creating collaborative websites, from the Hawaiian word wiki, meaning "quick") and encyclopedia. Although the policies of Wikipedia strongly espouse verifiability and a neutral point of view, critics of Wikipedia accuse it of systemic bias and inconsistencies (including undue weight given to popular culture) and allege that it favors consensus over credentials in its editorial processes. Its reliability and accuracy are also targeted. Other criticisms centre on its susceptibility to vandalism and the addition of spurious or unverified

information, though scholarly work suggests that vandalism is generally short-lived and an investigation in *Nature* found that the science articles they compared came close to the level of accuracy of *Encyclopedia Britannica* and had a similar rate of "serious errors". Wikipedia's departure from the expert-driven style of the encyclopedia building mode and the large presence of non-academic content have been noted several times. When *Time* magazine recognized *You* as its Person of the Year for 2006, acknowledging the accelerating success of online collaboration and interaction by millions of users around the world, it cited Wikipedia as one of several examples of Web 2.0 services, along with YouTube, MySpace, and Facebook. Some noted the importance of Wikipedia not only as an encyclopedic reference but also as a frequently updated news resource because of how quickly articles about recent events appear. Students have been assigned to write Wikipedia articles as an exercise in clearly and succinctly explaining difficult concepts to an uninitiated audience.

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